ANNUAL REPORT

July 1, 1979 - June 30, 1980

BOYD G. STEPHENS, M.D.
Chief Medical Examiner-Coroner
7th and Bryant Streets
San Francisco, California 94103

CHIEF MEDICAL EXAMINER - CORONER

San Francisco, California

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Chief Medical Examiner-Coroner
7th and Bryant Streets
San Francisco, CA 94103

November 14, 1980

Honorable Diane Feinstein, Mayor
and Members of the Board of Supervisors
City Hall - Civic Center
San Francisco, California

Dear Ms. Mayor and Honorable Supervisors:

Once again, the Medical Examiner-Coroner's Office has investigated over 46% of the deaths in the county. There were 3727 investigations with 1846 cases found to be under the jurisdiction of this office. There continues to be a relative increase in the numbers of toxicologic analyses as well as an ongoing increase in the numbers and types of drugs that must be considered. Testimony in court continues to increase in the aspect of the number of appearances as well as the relative time on the stand in each case. The relative number of cases under the jurisdiction of the office has decreased slightly, probably reflecting the population decrease, as well as the continued improvement in the experience and investigative skills of the deputies doing the initial scene investigation. Perhaps the most significant change in the office was the decision by the county to allow fee-for-service consultation on forensic cases. This will increase the revenues produced by the office to help off-set the ad-valorum taxes. Also, by agreement with the county, any excess monies can be spent in obtaining new equipment and instrumentation for the laboratories, thereby increasing both the capabilities and revenue potential for the department.

The major goals for 1980-81 will include the following:

1. An increase in the quantity of outside consultations, particularly in the toxicology department. This will consist almost entirely of cases from other law enforcement agencies. This service will have the effect of helping this department and improving the capabilities of other counties by increasing their scientific capabilities.

2. Increase the staff in the department by changing a part-time physician position to a full-time fellow (training) position. The department has been approved by the AMA as a training facility, and this change will add another full-time physician to the staff.

3. Increase the staff and revenue from federal and state granting for research. This department has the potential for significant medical and forensic research which can improve the safety and quality of life for this community and others. The costs and potential work are usually based on federal funding. The department has had continuous federal and/or state grants for the last five years. With good management, and help from the county, this can represent a major source of equipment and employment for the department as well as an important medical contribution to society.

4. Increase the training for the investigative staff of the department. It is true that we are involved in the training for many departments throughout the nation, but there is essentially no ongoing training program for our own investigators. Since these are the individuals with the responsibility of determining the possibility of death by accident, suicide, natural causes, or homicide at the scene, they must be well trained. This has to be a major goal. We will continue the program for medical students, residents, senior staff, parent groups and law enforcement. However, because of time restraints, we are reducing teaching programs for schools.

5. Appropriate upgrading and salary increases for all staff. Since many of our staff are considered to be similar to those in other departments, there is no variation in the salary program to compensate for the type of work, overtime requirements or equipment requirements for the employees.

The office continues to work in many fields including sudden infant death, child abuse, suicide recognition and prevention, vehicle safety, alcohol and health. Contrary to many beliefs, the San Francisco Medical Examiner's Office is definitely interested in the health and safety of the community as well as the forensic sciences. There is a tremendous impact to the living from the proper and careful study of the dead. Besides the emotional impact on the loved ones involved, there are many health and legal reasons why San Francisco must have one of the best Medical Examiner's systems in the United States.

Sincerely,

Boyd G. Stephens, M.D.
Chief Medical Examiner-Coroner

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INTRODUCTION

The Medical Examiner-Coroner is appointed by law to many responsibilities the foremost of which is the investigation and certification of a variety of deaths including all deaths of other than natural causation, and any apparently natural deaths in which no physician can reasonably state the cause. The Medical Examiner can utilize any and all medico-legal investigative techniques, including autopsy, to establish both the medical cause of death, and mode or circumstances of death (natural, accident, homicide, suicide or undetermined).

The following represent the deaths which must be reported to the Medical Examiner-Coroner, as required by various sections of the Government, Health and Safety and Penal Codes:

1. Homicide - known or suspected
2. Suicide - known or suspected
3. Following accident or injury (whether the accident or injury is the primary cause or contributory; death occurring immediately or at some remote time)
4. Medical attendance of less than 24 hours
5. No physician in attendance
6. Physician unable to state the cause of death (must be unable, not merely unwilling)
7. Poisoning (food, chemical, drug, therapeutic agents)
8. Occupational or industrial deaths
9. All deaths where a patient has not fully recovered from an anesthetic, whether in surgery, recovery room, or elsewhere
10. All deaths in operating rooms
11. All solitary deaths (unattended by physician or other person in the period immediately preceding death)
12. All deaths in which the patient is comatose throughout the period of the physician's attendance
13. All deaths of unidentified persons
14. Grounds to suspect the deaths occurred in any degree from a criminal act
15. Contagious disease - known or suspected - and constituting a public hazard
16. Deaths in prison or while under sentence
17. In the continued absence of a physician (not having seen the patient in 20 days prior to death)
18. Associated with a rape - known or alleged - or crime against nature
19. Related to or following abortion - known or suspected
20. Involving drowning, fire, hanging, gunshot, stabbing, cutting, starvation, exposure, alcoholism, drug addiction, strangulation or aspiration

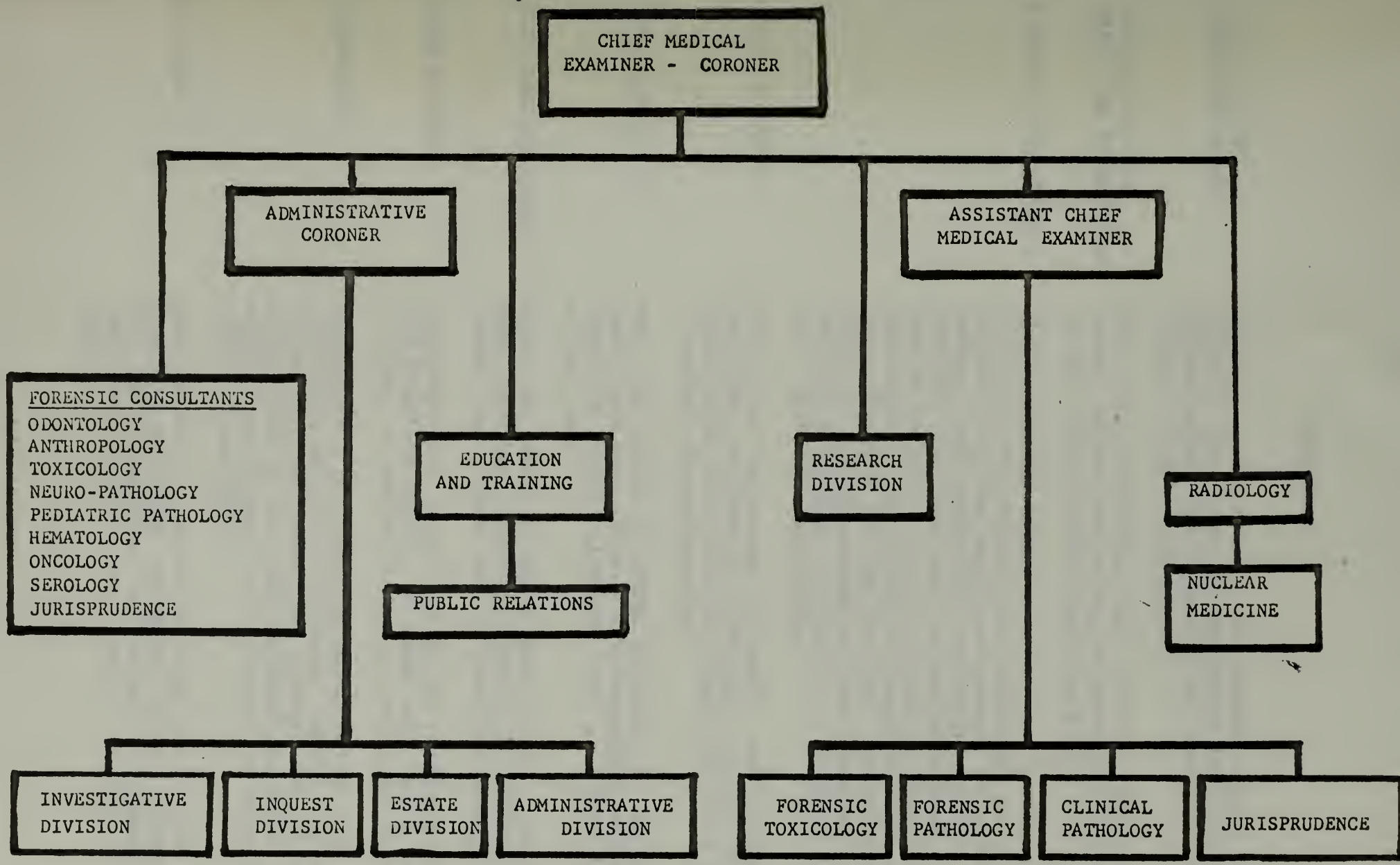
Additional mandated responsibilities include protection and safekeeping of property belonging to deceased individuals; conducting inquests when indicated; maintaining proper public records; making reports to other agencies; identification of deceased persons; interment of indigent dead; and many other death-related activities.

DEPARTMENTAL COSTS

1979 - 80

Total Budget	$782,064.
Transfers to the Controller, Health and Retirement	139,625.
NET BUDGET (all other costs)	642,439.
Total cases	3,727
Cost per case investigated	$ 173.
Revenues (sales of records, public auctions)	$ 12,337.
Total Costs Ad Valorum Taxes Per Case Investigated	$ 169.

As indicated elsewhere, this includes all investigative, administrative, scientific and expert witness costs to the county.


CHIEF MEDICAL EXAMINER - CORONER
ADMINISTRATIVE CORONER
ASSISTANT CHIEF MEDICAL EXAMINER
FORENSIC CONSULTANTS
ODONTOLOGY
ANTHROPOLOGY
TOXICOLOGY
NEURO-PATHOLOGY
PEDIATRIC PATHOLOGY
HEMATOLOGY
ONCOLOGY
SEROLOGY
JURISPRUDENCE
EDUCATION AND TRAINING
PUBLIC RELATIONS
RESEARCH DIVISION
RADIOLOGY
NUCLEAR MEDICINE
INVESTIGATIVE DIVISION
INQUEST DIVISION
ESTATE DIVISION
ADMINISTRATIVE DIVISION
FORENSIC TOXICOLOGY
FORENSIC PATHOLOGY
CLINICAL PATHOLOGY
JURISPRUDENCE

GLOSSARY

ALKALOID OF MORPHINE GROUP	Typically referred to as morphine type alkaloid, this is the chemical substance found in body fluids after the injection of heroin or other drugs derived from opium.
TOXICOLOGY NOT VALID OR ELIMINATED	This term indicates that the deceased lived long enough after the injury to have eliminated some or all toxic agents from the body.
FORENSIC PATHOLOGY	The specialty field of medicine involving the application of medical and pathology principles in determining the cause and manner of sudden, unexpected, and medically unattended deaths. This includes the type and nature of injury, public health hazard, type or nature of homicide weapon, the relation of injury to death and interpreting other factors for the courts. These data are prepared and presented to the judicial system or for public health interests in keeping with the best available knowledge.
MODE OF DEATH	Indicates the manner of death, such as natural, accident, suicide or homicide, and is to be distinguished from cause of death which is purely a medical determination.
MODE EQUIVOCAL	With the cause of death determined, investigative data does not clearly differentiate between two modes of death, although some evidence supports either one.
MODE UNDETERMINED	With the cause of death determined, investigative data does not clearly support one of two possible modes, and either one is possible without prejudice
MODE UNKNOWN	Circumstances insufficient to indicate between two possible modes, as when only bones are found, or when no medical cause of death is determined.
PATHOLOGY	That branch of medicine which deals with the essential nature of disease, especially in the structural or functional changes in tissues, organs or systems of the body causing disease. It involves the diagnosis of disease by microscopic or chemical analysis.
SEROLOGY	That branch of pathology that deals with the analysis of blood and body fluids. Blood types for identification, exclusion of a suspect or judicial purposes are examples of the use in this office.

GLOSSARY

TOXICOLOGY	The scientific study of poisons, their detection, actions and treatment. The relationship of drug levels to emotional or personality change, behavioral or reasoning ability are frequent decisions based on this data.
MEDICAL EXAMINER	A physician specifically trained in forensic pathology who is responsible for investigating and determining the cause and manner of sudden or unexpected death.
AUTOPSY	A scientific dissection of the human body to determine the cause and nature of death in order to detect public health hazards, determine the method or type of death in homicides and improve the level of medical care in the community. In some cases, showing that no injury or wrongdoing was present is of great emotional and stabilizing value to the family.

FISCAL YEAR 1979-80

Total Deaths in County		8,090
Total Deaths Reported to Coroner		3,727
Cases Reported, Investigated and Cleared by the Coroner for Physician's signature		1,881
Coroner's Cases		1,846
% Reported to Coroner	46.1	
% County Deaths Having Coroner's Autopsies	22.8	

Cases Accepted by Coroner

1. Natural Deaths	1,155	(59%)
2. Accidents	293	
3. Suicides	208	
4. Homicides	114	
5. Mode equivocal	46	
6. Cause Unknown	9	
7. Cause Undetermined	0	
8. Sudden Infant Death Syndrome	21	

Autopsies performed	1,846
Autopsy Index	100%

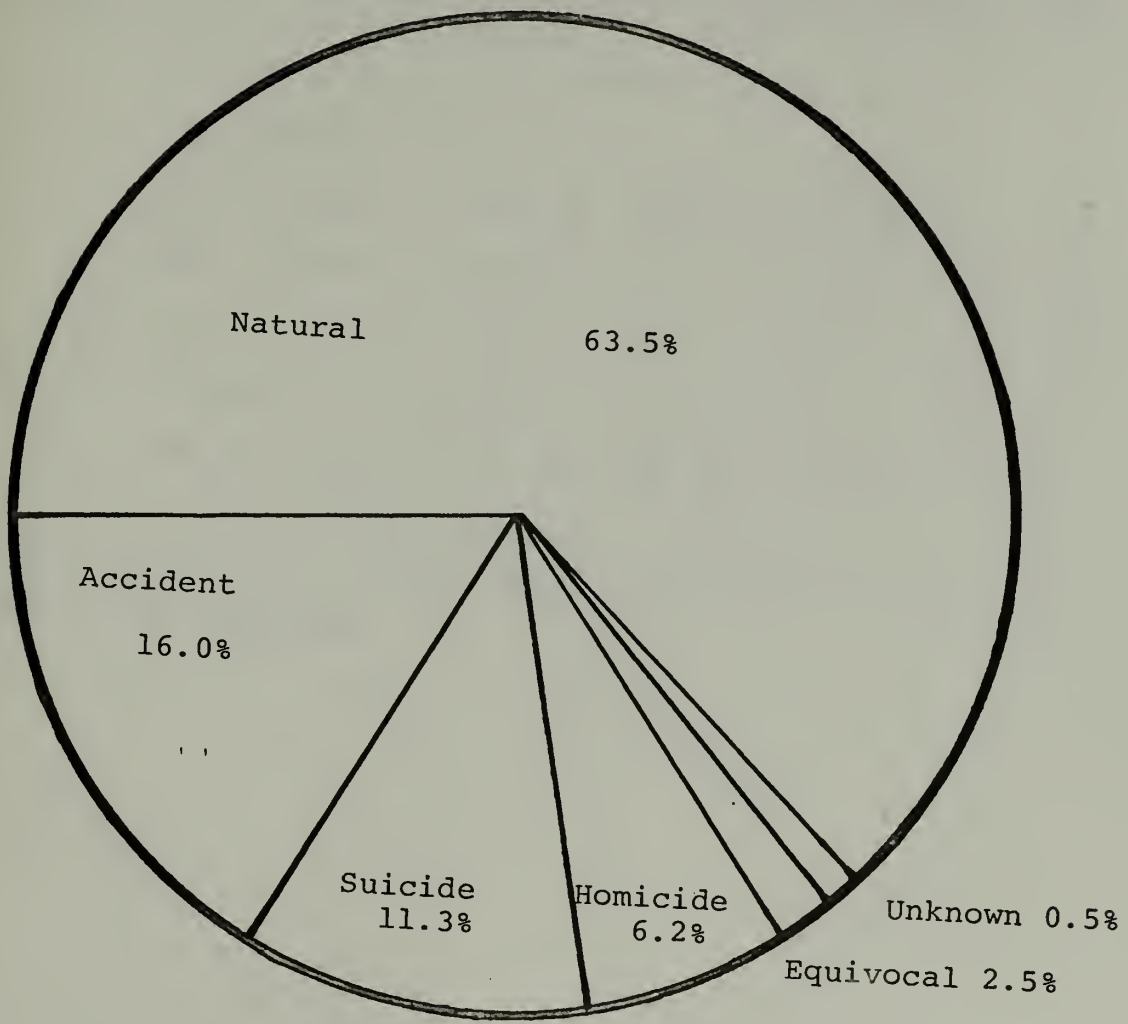
Burials Authorized by Coroner

1. Indigents and Fetuses buried by City	141
2. Veterans buried by Funeral Home (Rotation)	16
3. Cases buried by Funeral Homes with Public Administrator Controlled Funds (Rotation)	33
Inquests Held or Depositions Taken	52

Identification

1. Persons brought to Coroner's Office with insufficient identification	214
2. Persons subsequently identified by fingerprints, dental X-rays or other means	208
3. Persons buried as unidentified	6
4. Fingerprints taken and forwarded to FBI, CII, or SFPD	1,786

MEDICAL EXAMINER CASES FOR 1979-80



DEATHS OTHER THAN NATURAL

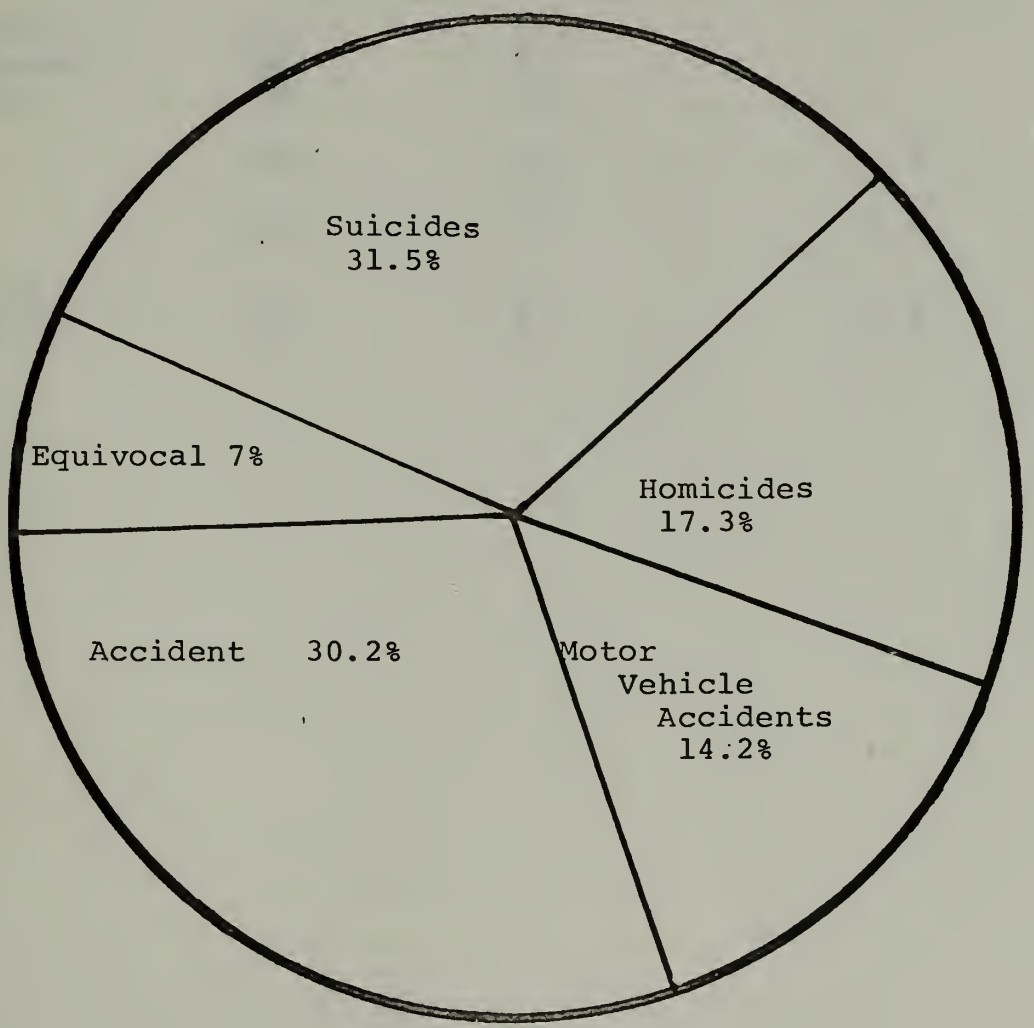
Monthly Comparison

MANNER OF DEATH	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	TOTAL
Unknown	0	1	1	1	0	2	1	0	0	0	2	1	9
Equivocal	4	6	3	3	3	4	5	1	7	2	7	1	46
Suicide	21	15	20	18	18	20	18	16	13	16	14	19	208
Homicide	11	7	15	5	17	12	9	4	9	4	3	18	114
Industrial	1	1	2	2	0	0	0	1	2	1	0	0	10
Motor Vehicle	4	10	9	15	10	8	9	6	9	6	5	3	94
Accident	14	14	18	13	14	13	20	23	15	10	18	17	189
SIDS*	0	2	3	6	0	0	4	1	2	1	1	1	21

* Sudden Infant Death Syndrome

VIOLENT DEATHS

Violent deaths are those caused by any non-natural means, including drugs. In San Francisco, 661 violent deaths occurred during the fiscal year 1979-80, accounting for 36% of the Medical Examiner death investigations.



VIOLENT DEATHS

There were 1,846 cases brought to the Coroner's Office and autopsied. Of these cases, 661 were determined to be due to violence, or that other trauma was involved.

Mode	Total No.	% of Total Coroner's Cases	% of Total County Deaths (8,090)
ACCIDENT	293	15.8	3.6
Motor vehicle	94	5.0	
Non-vehicular	189	10.2	
Industrial	10	0.6	
SUICIDE	208	11.2	2.5
HOMICIDE	114	6.1	1.4
EQUIVOCAL OR UNDETERMINED	46	2.4	0.5

VIOLENT DEATHS

Racial Distribution

RACE	Acc.	Traffic	Suicide	Homicide	Mode Equiv.	Unknown	TOTAL
Caucasian	140	71	176	67	31	5	490
Black	34	16	15	38	10	0	113
Asian	16	7	10	9	1	3	46
TOTALS	190	94	201	114	42	8	649

Distribution by Sex

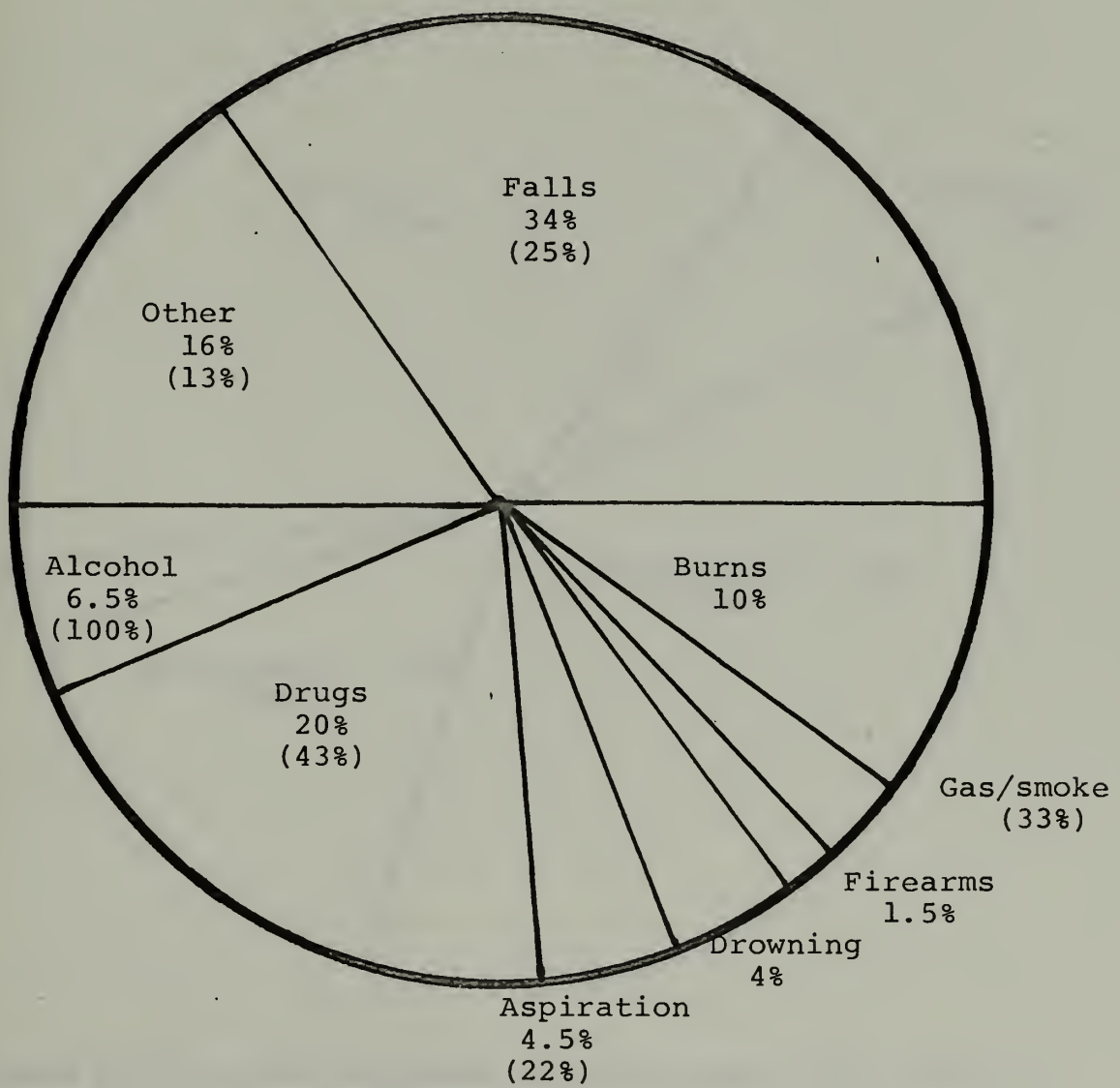
Male	130	65	163	89	24	8	479
Female	60	29	38	25	18	0	170
TOTALS	190	94	201	114	42	8	649

MODE OF DEATH - YEARLY COMPARISON

	1969-70	70-71	71-72	72-73	73-74	74-75	75-76	76-77	77-78	78-79	79-80
ACCIDENTS											
Motor vehicle	112	105	113	122	82	89	105	75	81	94	94
Non-vehicular	365	370	352	319	256	349	363	226	271	246	199
SUICIDES	281	263	206	227	220	224	195	233	194	233	208
HOMICIDES	129	107	110	94	137	126	151	149	145	103	114

ACCIDENTS

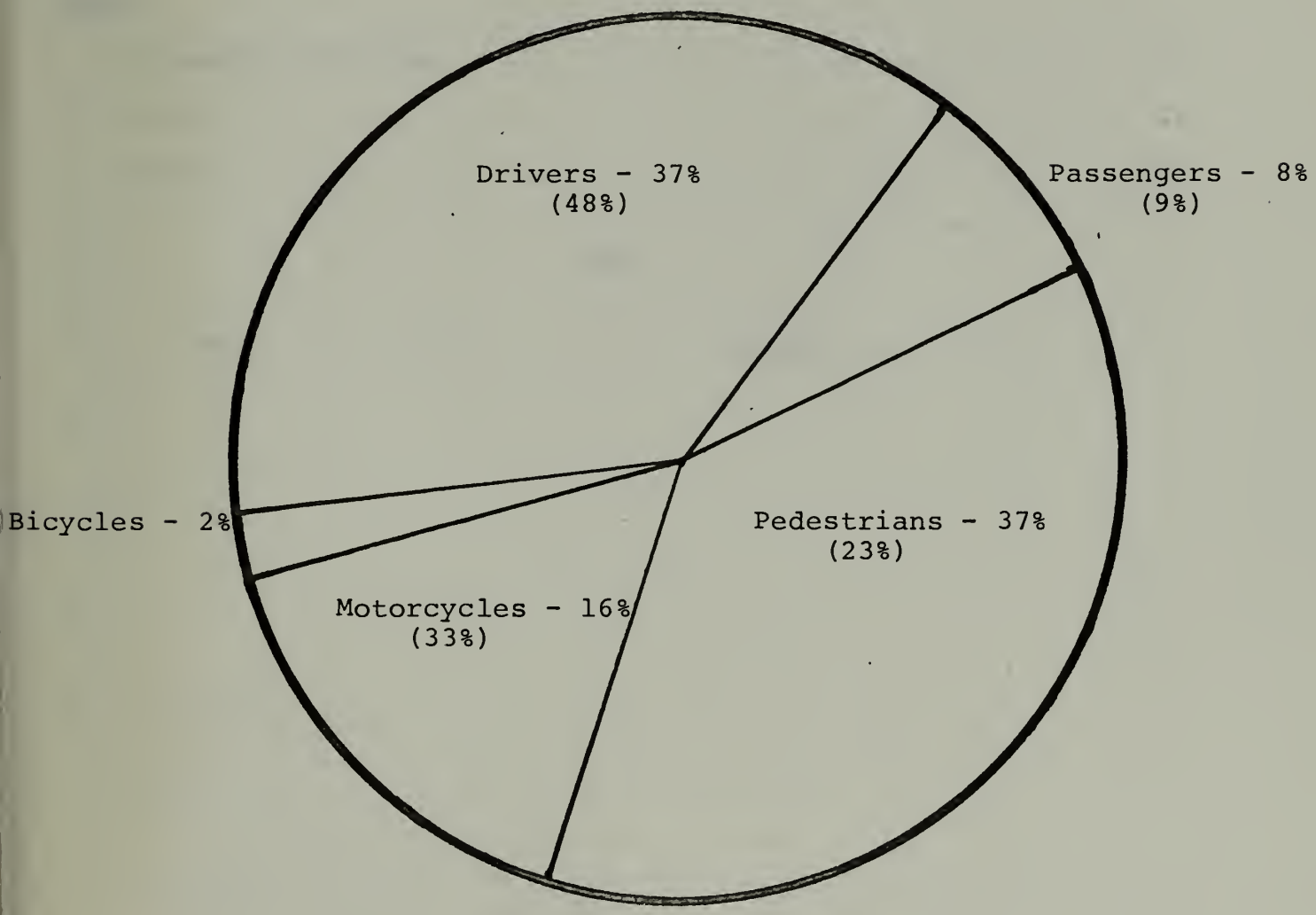
This category includes all unintentional fatalities except for traffic deaths. There were 198 accidental deaths which accounted for 30% of the Medical Examiner death investigations for the fiscal year 1979-80.



The percent in brackets indicates the percentage of victims in the category with a positive blood ethyl alcohol concentration.

TRAFFIC

In San Francisco; there were 94 traffic-related fatalities, accounting for 5% of the Medical Examiner death investigations for the fiscal year, 1979-80.



The figure in brackets indicates the percentage with positive blood ethyl alcohol concentrations

INDUSTRIAL ACCIDENTS

1979-1980

Total Number of Industrial Accidents 10

MEANS

Traumatic injuries 5

Falls 3

Burns 2

SEX

Male . . . . 10 Female 0

ACCIDENTS INCLUDING INDUSTRIAL

	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	TOTAL
TOTAL/MONTH	15	15	20	15	14	13	20	24	17	11	18	17	199
Male	11	9	15	11	9	12	15	18	11	6	12	10	139
Female	4	6	5	4	5	1	5	6	6	5	6	7	60
Alcohol	3	2	2	5	0	0	0	1	0	0	0	0	13
Drugs	5	3	6	1	2	4	6	5	3	0	3	2	40
Food Bolus	0	0	1	0	0	0	0	0	0	0	0	0	1
Aspiration	0	0	1	0	2	1	1	2	1	0	1	0	9
Drowning	1	0	0	1	1	0	0	1	2	0	1	1	8
Firearms	0	0	0	1	0	0	0	0	0	0	1	1	3
Gas/Smoke/ CO Inhalation	0	0	0	0	0	1	0	2	0	0	2	1	6
Burns	0	1	1	0	3	0	3	4	2	1	2	3	20
Toxic Poison	0	1	0	1	0	0	0	0	0	0	0	0	2
Fall	3	6	5	2	6	4	7	6	6	10	7	7	69
Other	3	2	4	4	0	3	3	3	3	0	1	2	28
Motor Vehicle Accident Deaths													
	5	10	9	15	10	8	9	6	9	6	5	3	94

SUICIDE

The determination of suicide as a manner of death represents the summation of scene investigation, including a review of psychological state, autopsy, pathology, toxicology and, frequently, more investigation. To the best of our knowledge, this is the only Coroner's Office performing toxicology on multiple organs and/or body fluids routinely in order to evaluate the metabolic status of a drug or drugs.

Realizing the immense emotional effect on a family, the diagnosis of suicide is never made lightly, and always represents a decision made on the basis of data sufficient to defend that decision in a court of law, if necessary. Should these data be inconclusive, the victim automatically gets the benefit of the doubt.

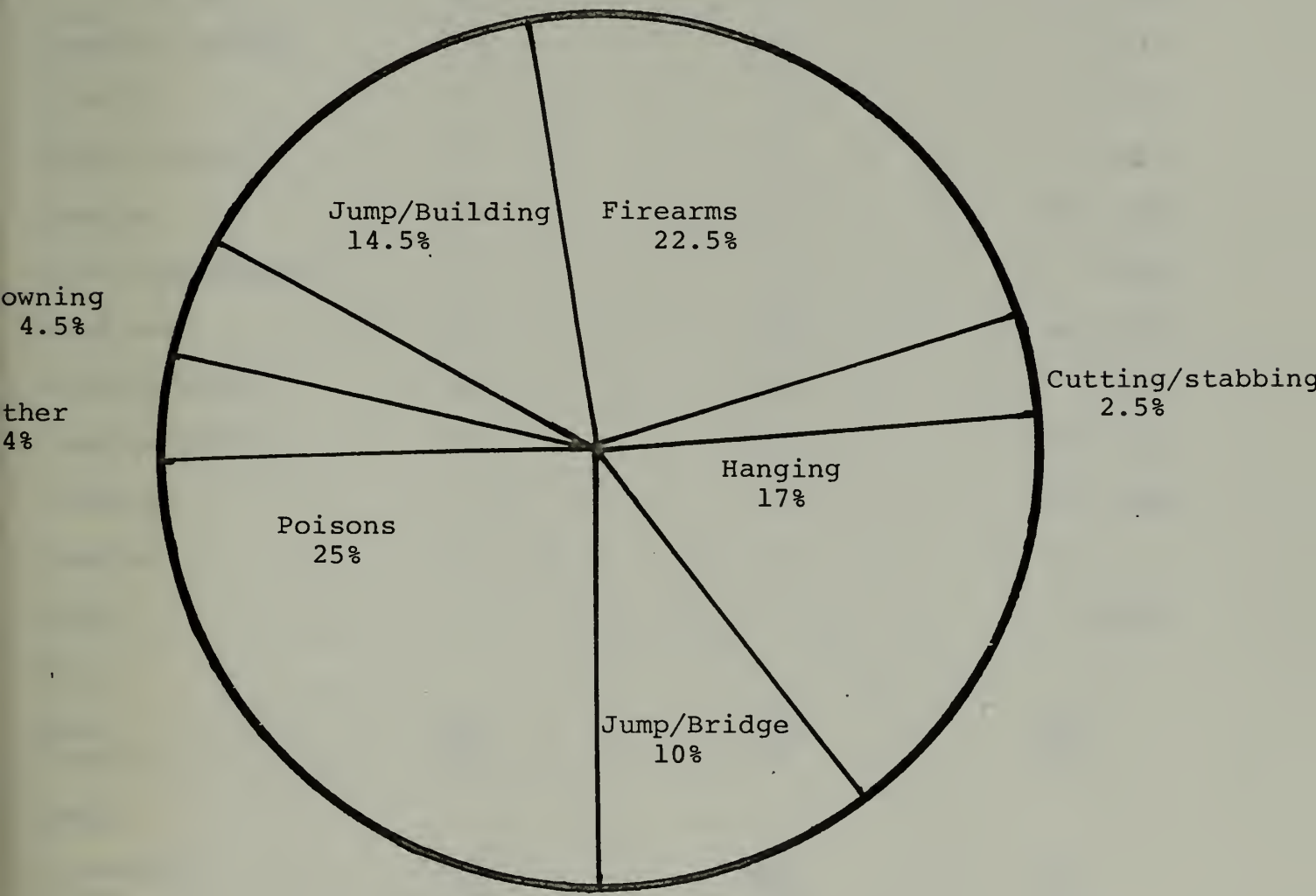
Suicide takes a tremendous toll of our young people. The relative number jumping from the Golden Gate Bridge would not seem to warrant the publicity assigned them as compared to the evident need for help for individuals using other methods.

To help understand the problem, and, hopefully, to aid in reduction of suicides, this office has supported suicidology research and prevention programs for many years. It is hoped that this work will help to reduce this needless loss.

The majority of these deaths are situational reactions, and, given momentary trained support, are potentially preventable.

SUICIDES

Suicides are those deaths caused by self-inflicted injuries. In San Francisco, 208 suicides occurred, accounting for 11% of the Medical Examiner death investigations for the fiscal year 1979-80.



SUICIDES

TOTAL NUMBER 1979-80 208

METHOD	1977-78	1978-79	1979-80
Poisoning	65	83	52 (38%)*
Jump/Golden Gate Bridge	18	19	21 (43%)
Jump/Bay Bridge	1	0	1 (0%)
Auto/CO	6	0	3 (0%)
Plastic bag	3	2	1 (0%)
Hanging	12	21	35 (20%)
Cutting/Stabbing	6	8	5 (40%)
Hand Gun	35	40	40 (45%)
Shotgun/rifle	22	10	7 (0%)
Jump/Building	23	41	30 (3%)
Drowning	2	4	10 (10%)
Burning	0	3	0 -
Other	1	2	2 (0%)
SEX			
Male	138	158	162
Female	56	75	46
RACE			
Caucasian	173	206	174
Black	9	12	17
Asian	12	15	12

* Number in brackets indicates the percentage of cases with a positive blood ethyl alcohol

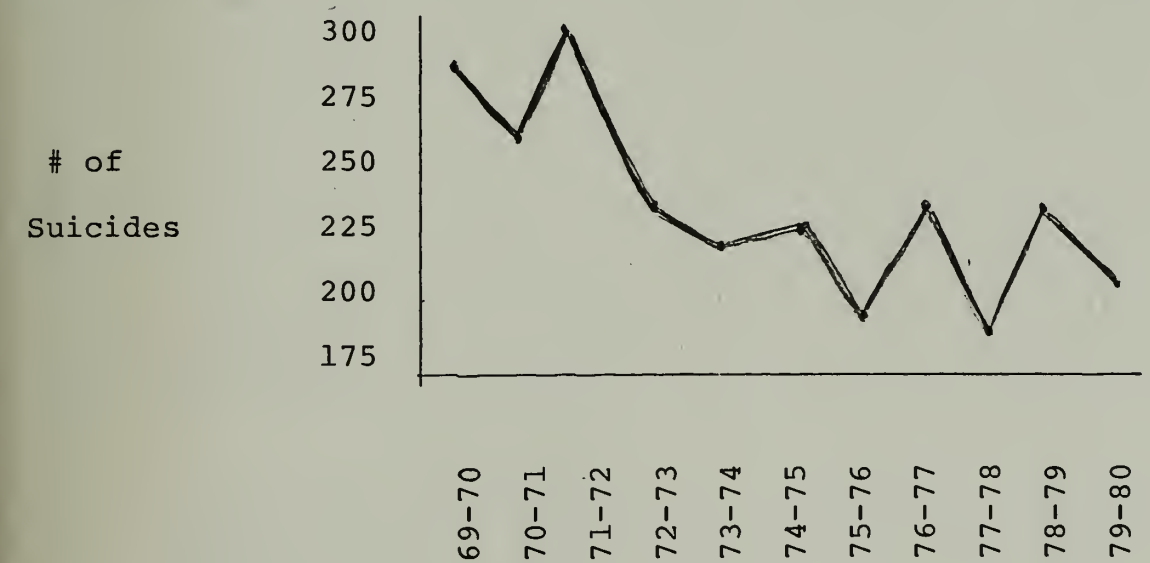
SUICIDES

COMPARISON BY YEARS

Method	69-70	70-71	71-72	72-73	73-74	74-75	75-76	76-77	77-78	78-79	79-80
Poisoning	114	75	74	69	51	76	56	79	65	83	52
Hand gun	33	32	38	33	43	45	44	49	35	40	40
Golden Gate Bridge	14	20	28	16	21	14	19	28	18	19	21

COMPARISON - TOTAL SUICIDES BY YEAR

69-70	70-71	71-72	72-73	73-74	74-75	75-76	76-77	77-78	78-79	79-80
281	263	296	227	220	224	195	233	194	233	208



SUICIDES

Comparison by Age

Number per Year

Age Range	1977-78	1978-79	1979-80
0 - 20	9	6	9
21 - 30	57	65	60
31 - 40	33	36	41
41 - 50	25	34	39
51 - 60	27	36	19
61 - 70	17	25	17
71 - 80	17	18	21
81 - 90	9	11	11
91 - 100	0	2	0

HOMICIDE

Homicide is the killing of one human by another. Murder is the unlawful killing of a human being with malice. The following data do not differentiate homicide as to whether it is justifiable, accidental or murder. Such distinctions are the proper function of the judicial system and are not the responsibility or function of this office.

Any judicial system dealing with crimes involving death requires a well-trained staff and well-equipped Medical Examiner-Coroner's Office that can and will interpret the forensic findings in an unbiased, fair manner. This investigation must be intense, accurate and rapid enough so that charges against one or more individuals may be pursued or dismissed without unfairly affecting their constitutional rights. That is the purpose of this office.

The proper evaluation and investigation of a homicide begins, naturally, at the scene. In the majority of cases, a member of this office (either the Coroner's Investigator, Administrative Coroner or Medical Examiner-Coroner), determines whether a death is a potential homicide. It has been well-documented that, if such a determination is made by an individual inexperienced or untrained in death investigation, his opinion will be wrong in 50% of the cases. Such a person is very apt to miss the subtle homicide and is more inclined to miscall a natural or accidental death a homicide, resulting in false arrest, false accusations, needless expenditure of public funds, waste of investigative time, and delay in the investigation of other deaths.

The Coroner's Investigator responds to the scene of death and determines whether the Police Homicide Detail will be called. When homicide is obvious, the Coroner's Investigator responds as part of a team (other members include homicide inspectors, photographers, criminologists). This office is responsible for the body, identification, inquiry into circumstances, manner and means of death (GOV. Code 27491.2). Besides the scene investigation, the Coroner's Investigator is responsible for recovered propoert, location and notification of next of kin, and preparation of a written summary of his investigation.

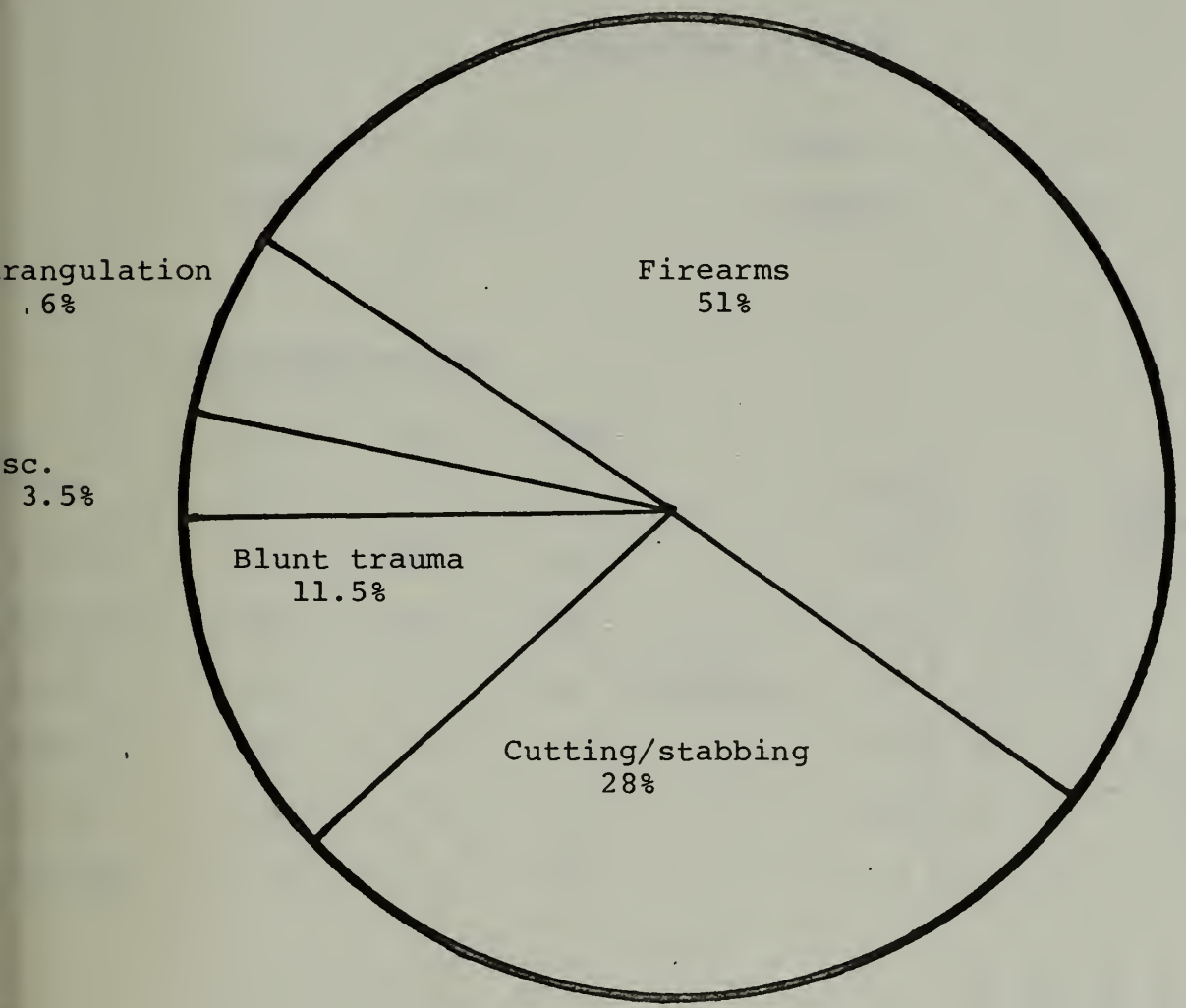
In about one-third to one-half of the homicides, a forensic pathologist responds to the scene, aiding in the investigation. The subsequent autopsy, including photography, may also use fluorscopy, X-ray, angiography and other techniques to establish and define the number, nature and severity of wounds, obtain evidence (i.e. bullets) and to prepare an official report. This report, including chemistry, serology and toxicology results is used as part of the prosecution or defense of the case in the formal judicial hearing.

The very first requirement of our judicial system pertaining to criminal trial, requires identification of an individual and presentation of evidence, usually by virtue of expert testimony, relative to the cause of death or trauma associated with the death. The Medical Examiner-Coroner's Office identifies the body, frequently relying on local police, CII or FBI fingerprints. Expert forensic testimony is given by the Forensic Pathologist from this office. In addition, the Forensic Toxicologist is frequently called upon to testify on the significance and effect of various drug levels, a matter of great importance when dealing with the concept of diminished capacity.

Of minor, but increasing importance, is the fact that, because of our excellent and advanced medical facilities, we are seeing more homicide and trauma cases transferred into the county for medical therapy. Should these individuals die, the autopsy and court testimony are done by this office.

HOMICIDES

Homicides are those deaths caused by another person, generally resulting in murder or manslaughter charges. In San Francisco, 114 homicides occurred in 1979-80, accounting for 6% of the Medical Examiner death investigations.



HOMICIDES

Total Number of Homicides 114

Males . . . . 90 Females 24

COMPARISON BY MONTH

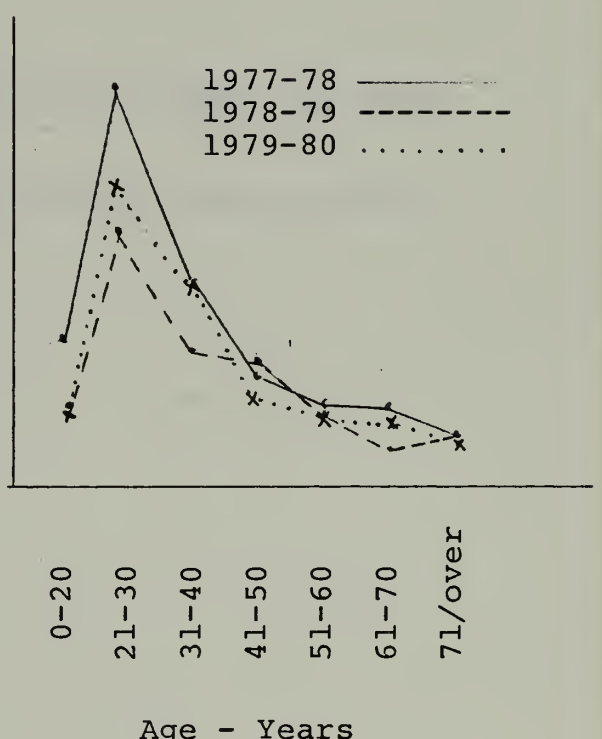
JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	TOTAL
11	7	15	5	17	12	9	4	9	4	3	18	114

COMPARISON BY RACE

Caucasian	67	Asian	8
Black	38	Samoan	1

COMPARISON BY AGE

	77-78	78-79	79-80
0-20	20	10	9
21-30	59	38	43
31-40	28	19	28
41-50	12	16	11
51-60	10	9	9
61-70	10	5	9
71-over	6	6	5



HOMICIDE

COMPARISON BY METHOD

Method	Number	Alcohol *	Drugs **
Blunt trauma	13	31%	1
Cutting/stabbing	32	47%	6
Hand gun	58	45%	12
Strangulation	7	14%	2
Arson	1	0%	0
Other	3	33%	0

* Refers to those victims with positive blood ethyl alcohol of those tested - percentage

** Refers to those victims with positive drug levels of those tested - number

PATHOLOGY

In this department, the tissue and body fluid samples taken at autopsy are prepared for microscopic study, histo-chemically stained, or analyzed for chemical constituents. Cardiac pacemakers or other mechanical life-support devices are examined for any defect. Smears or "wet-mounts" are examined for spermatozoa, bacteria or tuberculosis. Bacteriologic cultures may be taken, but if pathogens are grown, they are usually sent to the Department of Public Health (state or local) for further identification. If indicated, "soft" X-rays or histo-chemical tests are done to establish entrance or exit gunshot wounds. Here, also, research techniques such as methods of obtaining fingerprints from the skin of a victim, are developed.

MONTHLY FIGURES

PATHOLOGY *

YEAR	TOTAL CORONER'S CASES	CASES REFERRED TO PATHOLOGIST	NO. OF ORGANS SUBMITTED	NO. OF SECTIONS TAKEN	HISTO-PATHOLOGIC SLIDES MADE	** SPECIAL STAINS	*** BLOOD GROUP-INGS	**** OTHER DETERMIN-ATIONS
1979								
JULY	132	102	621	1328	311	27	11	85
AUG	143	112	713	1469	305	24	11	22
SEP	151	107	786	1429	338	62	14	53
OCT	147	100	777	1656	386	30	6	53
NOV	165	101	841	1566	373	17	17	54
DEC	173	109	679	1490	374	30	15	58
1980								
JAN	166	97	664	1773	385	47	14	17
FEB	160	110	531	1466	355	40	5	52
MAR	167	107	400	1532	354	35	7	62
APR	141	74	372	1119	266	18	5	52
MAY	148	91	509	1417	322	54	6	37
JUNE	152	90	341	1368	277	29	23	38
TOTALS	1846	1200	7229	17613	4046	413	134	530

* These figures do not reflect photography, forensic radiology or material prepared for teaching forensic pathology

** Includes smears examined for bacteria and spermatozoa

*** ABO and Anti Rh

**** Blood, urine, water, evidence - for hematology, biochemistry, urinalysis, bacteriology, serology, "Sickledex", etc.

TOXICOLOGY

Toxicology is the science that deals with the detection and identification of drugs and poisons. In our work, any possible agent may be of importance in a death. The most common poisons in our community are prescription items. Other common agents are illegal drugs (street drugs), industrial compounds, certain gases and alcohol.

It is necessary not only to accurately detect and identify the agent or agents involved in a case, but to precisely quantitate them so that their exact relationship to the death, if any, can be evaluated. This determination must be as precise and specific as scientifically possible, and it must be able to stand up to review by any other qualified laboratory in the nation.

As a routine part of our work, we determine the levels of drugs in two or more body "compartments", such as blood and stomach, or combinations of three compartments, in order to answer the question of acute or chronic drug usage. This is of utmost importance in determining the time of ingestion, and therefore the intent of the ingestion - whether accidental or suicidal. Since the types and natures of the unidentified compounds can be so varied, thus must the capabilities of this department also be varied.

Extensive research is performed in this department, some of which deals with means of identifying unknown compounds in post-mortem samples. A current project is concerned with determining the types of drugs and their levels in both the victim and suspect in certain serious crimes. This information is then available for the courts to aid in the just determination of the innocence or guilt of the person charged with the crime.

TOXICOLOGY

July 1979 - June 1980

Incidence of various drugs or poisons found singly or in combination:

These are not necessarily the cause of death or even a contributing cause. These figures reflect toxic agents present in the body to any degree. Any one case may have more than one drug or poison present.

Acetaminophen	13	Lithium	1
Acetylene	1	Meperidine	1
Alkaloid of morphine group	46	Meprobamate	3
Amitriptyline	7	Methadone	10
Ammonium chloride	1	Methamphetamine	6
Amphetamines	9	Methaqualone	2
Barbiturates		Methyl alcohol	2
Amobarbital	19	Methylenedioxyamphetamine	1
Pentobarbital	16	Methylphenidate (Ritalin)	1
Phenobarbital	22	Nitrous oxide	1
Secobarbital	28	Nortriptyline	2
Carbon Monoxide	12	Pentazocine	1
Chloral hydrate (TCE)	8	Phenacetin	2
Chlordiazepoxide (Librium)	7	Phencyclidine (PCP)	1
Chloroform	1	Phenothiazines	9
Cocaine	2	Phenytoin (Dilantin)	18
Codeine	22	Propoxyphene (Darvon)	9
Diazepam (Valium)	19	Propranolol	1
Diphenoxylate (Lomotil)	1	Salicylates	8
Doxepin (Sinequan)	5	Theophylline	1
Ethchlorvynol (Placidyl)	1	Toluene	1
Flurazepam (Dalmane)	17	Trilafon	1
Glutethimide (Doriden)	1	Warfarin	1
Imipramine (Tofranil)	1		

TOXICOLOGY

Year/ Month	# Cases Referred to Toxicology	# Specimens Received	Alcohol Tested	Alcohol Pos.	Barbiturates Tested	Barbiturates Pos.
1979						
JUL	130	619	130	26	130	6
AUG	141	629	141	32	141	5
SEP	149	657	149	53	149	7
OCT	144	616	144	35	144	5
NOV	162	692	162	35	162	5
DEC	170	725	170	47	170	11
1980						
JAN	162	691	162	37	162	6
FEB	158	726	158	57	158	6
MAR	166	759	166	48	166	6
APR	137	635	137	30	137	0
MAY	146	690	146	34	146	3
JUNE	149	722	149	30	149	3
TOTALS	1814	8161	1814	464	1814	63

TOXICOLOGY SCREENS

Year/ Month	Sedative-hypnotics Tested	Pos.	Narcotics Tested	Pos.	Benzodiazepines Tested	Pos.
1979						
JUL	31	8	27	5	21	2
AUG	33	4	32	8	24	4
SEP	29	10	26	6	27	5
OCT	37	7	34	5	32	3
NOV	39	9	38	6	31	3
DEC	44	12	30	4	27	1
1980						
JAN	26	8	31	7	22	7
FEB	37	9	29	10	29	3
MAR	43	12	33	7	35	3
APR	39	8	27	4	33	1
MAY	38	10	25	5	16	2
JUNE	38	4	30	5	20	1
TOTALS	434	101	362	71	318	35

HEROIN DEATHS

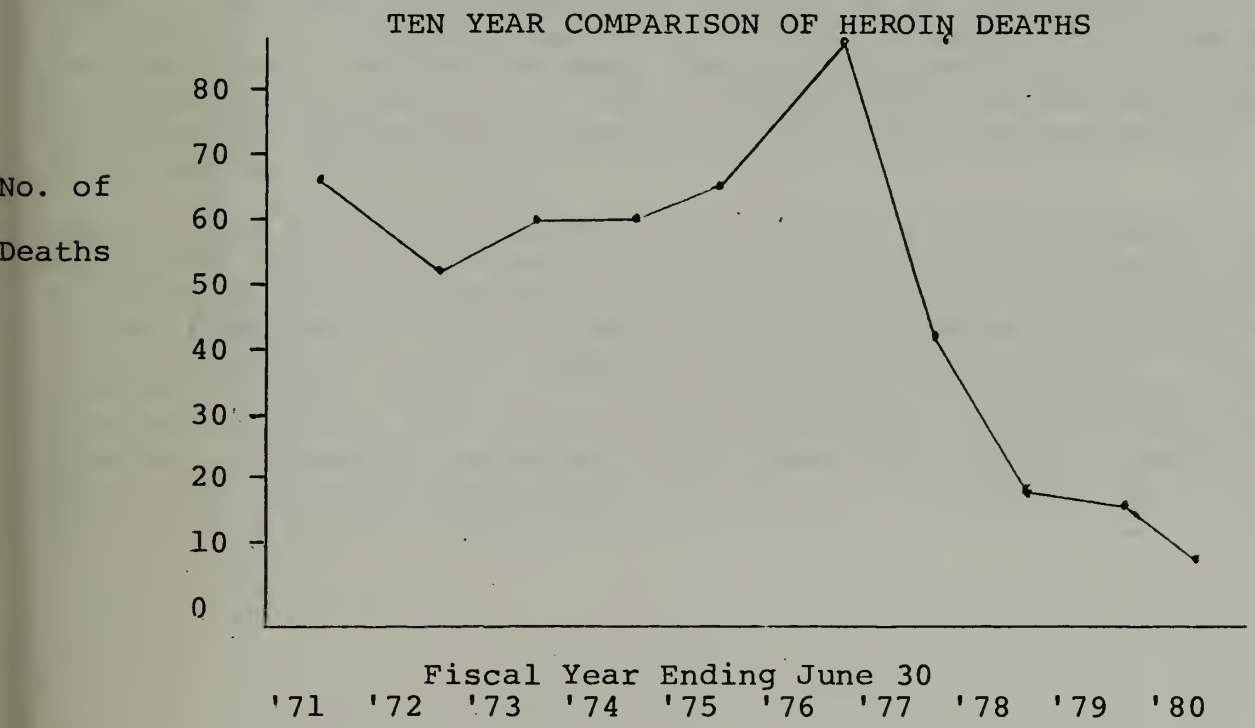
Morphine-type alkaloid (heroin) deaths 10

Sex distribution - Male 9 (90%)
Female 1 (10%)

Racial distribution - White 6 (60%)
Black 3 (30%)
Asian 1 (10%)

Age Distribution

16-20	21-25	26-30	31-35	36-40	41-over
1	3	2	0	1	3

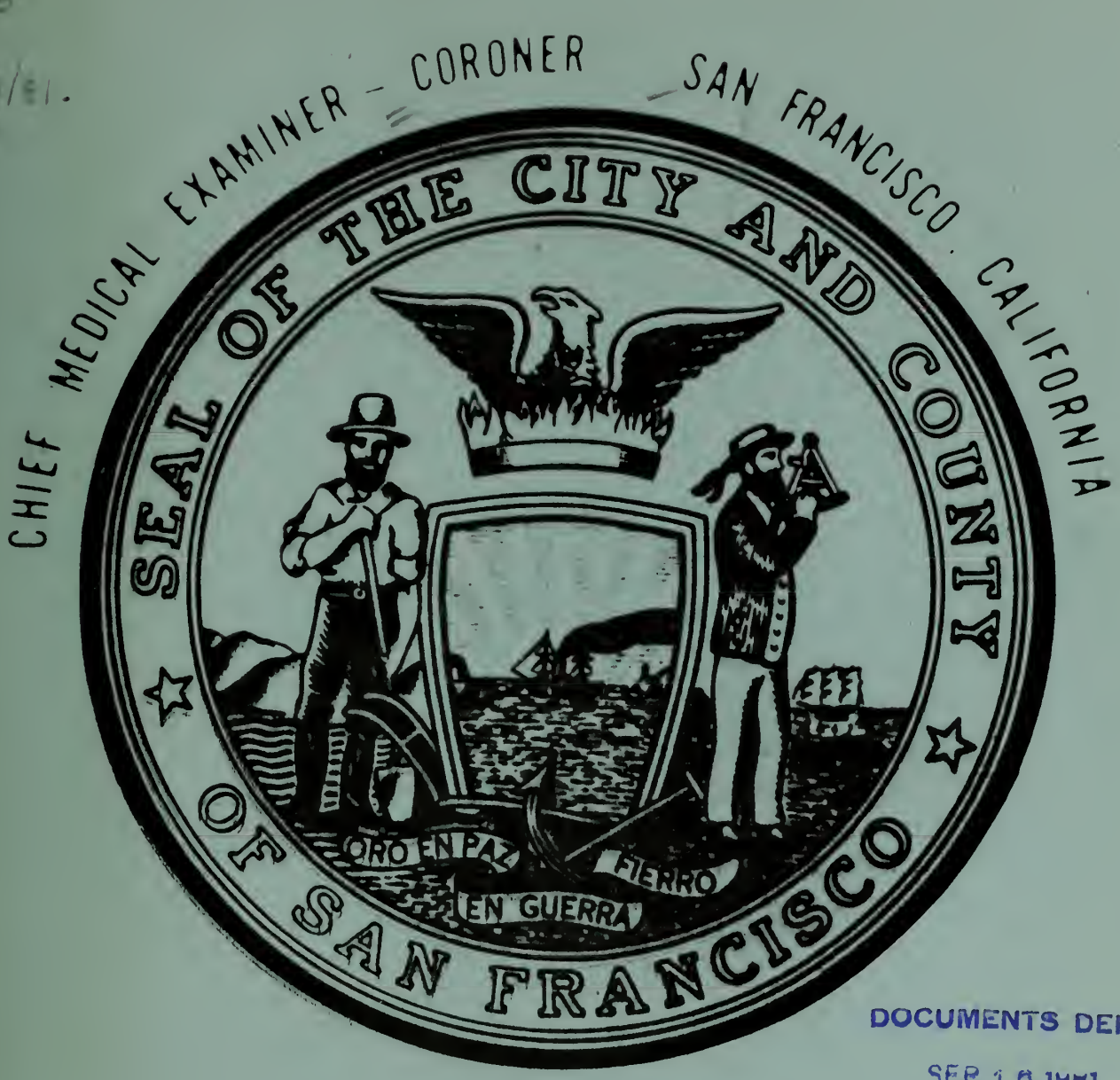


The data presented on the graph indicate a continuing decrease in heroin-related deaths for the fourth consecutive year.

RESEARCH

The San Francisco Medical Examiner-Coroner's Office was awarded a contract in September, 1978, from the National Institutes of Child Health and Human Development, to set up and maintain a coordinating pathology laboratory as part of a nation-wide collaborative study on the Sudden Infant Death Syndrome (SIDS). The aim of this study is to determine specific diagnostic criteria and possibly establish risk factors for SIDS. This contract is currently funded at a level of $275,193. and will possibly continue until December, 1982. Tissue specimens and autopsy reports from 978 cases of infant death have been submitted to this office from Coroner's offices throughout the United States. From the tissues submitted on each case, a set of microscopic slides were prepared in a standardized manner. A total of 23,729 microscopic slides have been prepared. The slide sets are being examined be three pathologists, experienced in SIDS diagnosis, who each submit an independent opinion as to cause of death on each case. The three diagnoses are compared and a final cause of death will be established for each case. Data are being collected and coded for computer input at the Data Coordinating Center at the University of Washington in Seattle. This contract has provided employment for 9 people since its inception. Two people are now working part-time on this project.

This office has also been the recipient of a federal grant, funded with LEAA monies, received through the Office of Criminal Justice Planning in Sacramento and the Mayor's Criminal Justice Council in San Francisco. This project, entitled "Forensic Serology and Toxicology Analysis" is funded through September, 1980. Starting October 1, 1980, funding for this project will be provided from the General Fund with the understanding that all efforts will be made to generate revenue to compensate for these funds through testing of specimens received from outside counties. Employment for 3 people is provided on this project.



ANNUAL REPORT

July 1,1980 - June 30, 1981

BOYD G. STEPHENS, M.D.
Chief Medical Examiner-Coroner
7th and Bryant Streets
San Francisco, California 94103

CHIEF MEDICAL EXAMINER - CORONER

San Francisco, California

ANNUAL REPORT

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ANNUAL REPORT

July 1, 1980 - June 30, 1981

BOYD G. STEPHENS, M.D.
Chief Medical Examiner-Coroner
7th and Bryant Streets
San Francisco, California 94103

September 15, 1981

Honorable Dianne Feinstein, Mayor
and Members of the Board of Supervisors
City Hall - Civic Center
San Francisco, California

Dear Ms. Mayor and Honorable Supervisors:

During the immediate past fiscal year, this office has investigated over 45% of the deaths in this county. Of these cases, there were 3715 investigations and 1814 cases or 22% of the deaths were found to fall under the legal jurisdiction of the Medical Examiner.

It is our continued posture to represent a non-biased medico-legal investigative system with fair and accurate reporting of the circumstances, cause and manner of death, as required by California law. To this end, we have continued to try to improve the quality of training for our own personnel as well as personnel of other law enforcement agencies. We are continuing to seek methods of increasing our scientific capabilities through improved equipment and procedures which will accurately determine the presence of drugs or toxins in victims, allowing a more precise determination of their importance in the death. We are also improving the accuracy and the capabilities of the drug analyses which are routinely performed on specimens from suspects or other living individuals so that the results of these analyses form an unchallenged basis for decisions concerning effects on actions and behavior of any drugs found.

Scene investigation represents a major portion of the thrust of this department in death investigation. In some cases, this responsibility is partly shared with sections of the fire or police department. However, in the majority of death cases in the county, this department has the responsibility to determine whether the death is natural, accident, suicide or homicide. The tremendous importance of accurate scene investigation and its impact on any subsequent court presentation cannot be overemphasized. It is most commonly an incomplete scene investigation that causes major questions in the court hearing. Because of the increasing demands from the judicial system for unquestionable evidence, and the increased use of defense experts who have the time and money to pursue evidence analysis and interpretation, there is a slow and definite trend for more evidence interpretation and expert conflict in court. Several times during this last year, major criminal trials have hinged on the defense claims that they had found evidence favorable to their position, and that we had missed the finding because of, among other things, our inadequate equipment. The costs of an accurate investigation are high, but the costs of an improper and incomplete investigation are much higher in the aspects of court costs and retrials. Innocent or guilty convictions should be on the basis of fact, not emotion. Without strong facts, juries tend toward emotional decisions.

Both the time and effort involved in court testimony continue to increase. Since we are now performing fee-for-service work, a considerable amount of time is spent in travel to other counties and states. This all represents time away from the office and an increased work load. Since most of these consultations are major cases, that work load is substantial.

Our departmental objectives for 1981-82 include the following:

1. A continued increase in the quantity of outside consultations by 5%, particularly in the toxicology department. Although we would prefer cases from other law enforcement agencies, this past year has produced primarily defense cases, and we expect this trend to continue. We have added a project (11550) which involved screening specimens from suspected drug users for the police. If revenues from outside consultations exceed budget needs, the surplus will be used to purchase additional equipment.

2. Increase the staff and revenues from federal and state granting projects. This department continues to have the potential for significant medical and forensic research, the results of which can contribute to the safety and quality of life in this and other communities. Granting has been the major manner the department has used to advance its scientific capabilities, especially during this period of tight budget restraints.

3. Decrease the protocol backlog, and decrease the completion time for all reports. With the addition of the IBM word processor, we now finish all gross autopsy protocols on major cases, such as homicides, within the next working day. However, routine cases are still running two to three months behind. We are still short of personnel in this department, and we have to use transcribers for other office duties. We believe that, if we can catch up with the daily work-load, we can maintain the necessary output.

4. Appropriate upgrading and salary consideration for all staff. Since many of our staff positions are unique to this department, we feel that there is no appropriate comparison to any other department. In addition, the compensation is not sufficient in some positions to ensure that the qualified and motivated people performing these jobs are encouraged and supported. There is a significant difference between good employees and just an employee and it is important to help encourage good employees in county government. Pay, working conditions, equipment and benefits have to be

increased so that the best are doing this work. Major delays have again been encountered with other city departments, most typically Civil Service. We would hope to eventually add another position to our department who would be able to devote the time necessary to improve relations with Civil Service and reduce the time and amount of work currently lost through delays and repeated work.

The office continues to work in many fields including sudden infant death syndrome, child abuse, suicide recognition and prevention, vehicle safety, alcohol and health. Contrary to many beliefs, the San Francisco Medical Examiner's Office is definitely interested in the health and safety of the community as well as in the forensic sciences. There is a tremendous impact to the living from the proper and careful study of the dead. In addition to the emotional impact on the loved ones involved, there are many health and legal reasons why San Francisco must have one of the best Medical Examiner's systems in the United States.

Sincerely,

Boyd G. Stephens, M.D.
Chief Medical Examiner-Coroner

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INTRODUCTION

The Medical Examiner-Coroner is appointed by law to many responsibilities, the foremost of which is the investigation and certification of a variety of deaths including all deaths of other than natural causation, and any apparently natural deaths in which no physician can reasonably state the cause. The Medical Examiner can utilize any and all medico-legal investigative techniques, including autopsy, to establish both the medical cause of death, and mode or circumstances of death (natural, accident, homicide, suicide or undetermined).

The deaths which must be reported to the Medical Examiner-Coroner, as required by various sections of the Government, Health and Safety and Penal codes are as follows:

1. Homicide - known or suspected
2. Suicide - known or suspected
3. Following accident or injury (whether the accident or injury is the primary cause or contributory; death occurring immediately or at some remote time)
4. Medical attendance of less than 24 hours
5. No physician in attendance
6. Physician unable to state the cause of death (must be unable, not merely unwilling)
7. Poisoning (food, chemical, drug, therapeutic agents)
8. Occupational or industrial deaths
9. All deaths where a patient has not fully recovered from an anesthetic, whether in surgery, recovery room, or elsewhere
10. All deaths in operating rooms
11. All solitary deaths (unattended by physicians or other person in the period immediately preceding death)
12. All deaths in which the patient is comatose throughout the period of the physician's attendance
13. All deaths of unidentified persons
14. Grounds to suspects the deaths occurred in any degree from a criminal act
15. Contagious disease - known or suspected - and constituting a public hazard
16. Deaths in prison or while under sentence
17. In the continued absence of a physician (not having seen the patient in 20 days prior to death)
18. Associated with a rape - known or alleged - or crime against nature
19. Related to or following abortion - known or suspected
20. Involving drowning, fire, hanging, gunshot, stabbing, cutting, starvation, exposure, alcoholism, drug addiction, strangulation or aspiration.

Additional mandated responsibilities include protection and safekeeping of property belonging to deceased individuals; conducting inquests

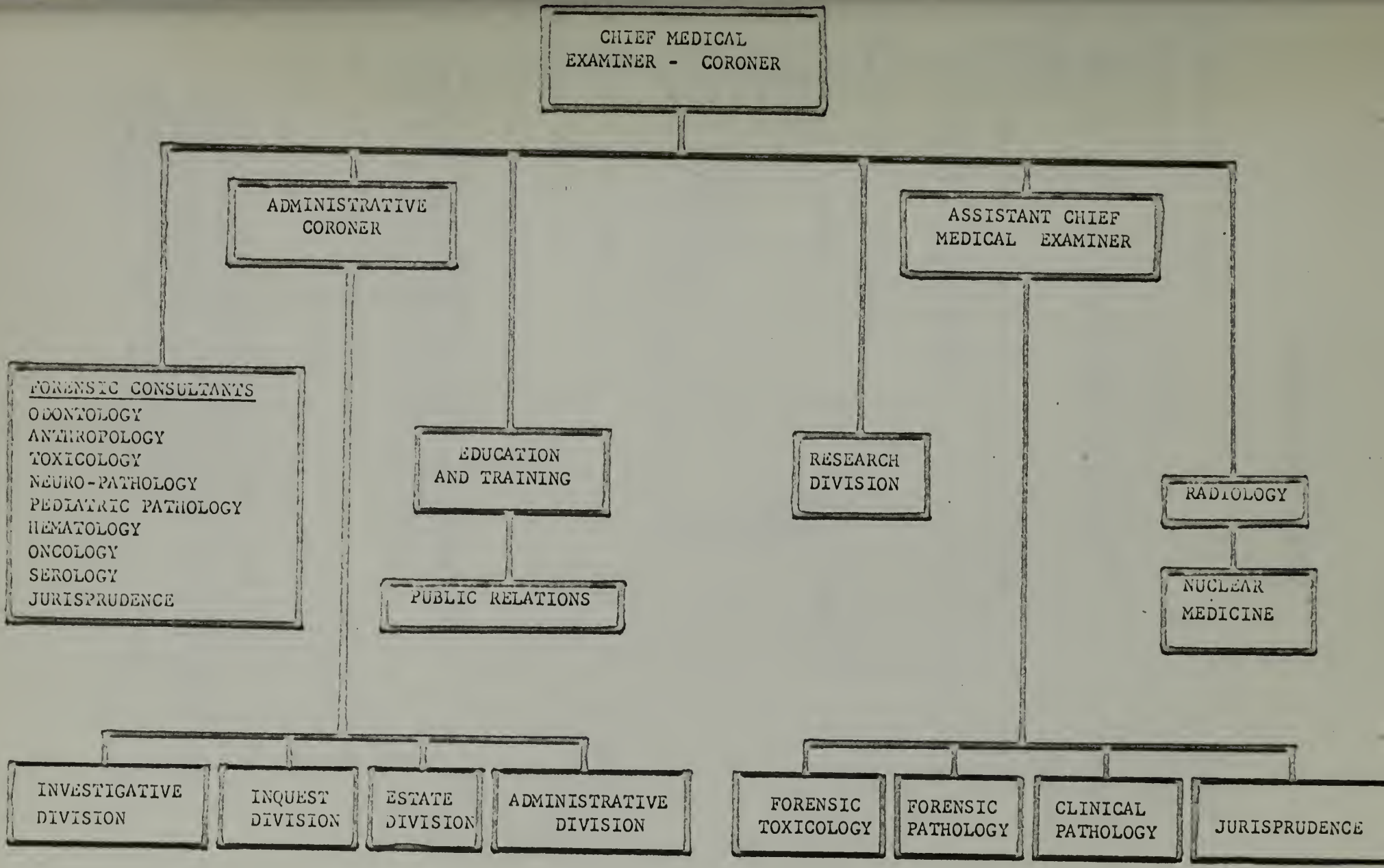
when indicated; maintaining proper public records; making reports to other agencies; identification of deceased persons; interment of indigent dead; and many other death-related activities.

DEPARTMENTAL COSTS

1980 - 81

Total Budget	$973,150.
Transfers to the Controller, Health and Retirement	154,302.
NET BUDGET (all other costs)	818,848.
Total cases	3,716.
Cost per case investigated	$ 220.
Revenues (sales of records, public auctions, fee-for-service work)	$ 26,485.
Total Costs Ad Valorum Taxes Per Case Investigated	$ 213.

As indicated elsewhere, this includes all investigative, administrative, scientific and expert witness costs to the county.


CHIEF MEDICAL EXAMINER - CORONER
ADMINISTRATIVE CORONER
ASSISTANT CHIEF MEDICAL EXAMINER
FORENSIC CONSULTANTS
ODONTOLOGY
ANTHROPOLOGY
TOXICOLOGY
NEURO-PATHOLOGY
PEDIATRIC PATHOLOGY
HEMATOLOGY
ONCOLOGY
SEROLOGY
JURISPRUDENCE
EDUCATION AND TRAINING
PUBLIC RELATIONS
RESEARCH DIVISION
RADIOLOGY
NUCLEAR MEDICINE
INVESTIGATIVE DIVISION
INQUEST DIVISION
ESTATE DIVISION
ADMINISTRATIVE DIVISION
FORENSIC TOXICOLOGY
FORENSIC PATHOLOGY
CLINICAL PATHOLOGY
JURISPRUDENCE

FISCAL YEAR 1980-81

Total Deaths in County		8,300
Total Deaths Reported to Coroner		3,715
Cases Reported, Investigated and Cleared by the Coroner for Physician's signature		1,900
Coroner's Cases		1,815
% Reported to Coroner	44.8	
% County Deaths Having Coroner's Autopsies	21.9	

Cases Accepted by Coroner

1. Natural Deaths	1,099	(60%)
2. Accidents	297	
3. Suicides	179	
4. Homicides	136	
5. Mode equivocal	72	
6. Cause Unknown	19	
7. Cause Undetermined	0	
8. Sudden Infant Death Syndrome	13	

Autopsies performed	1,814
Autopsy Index	100%

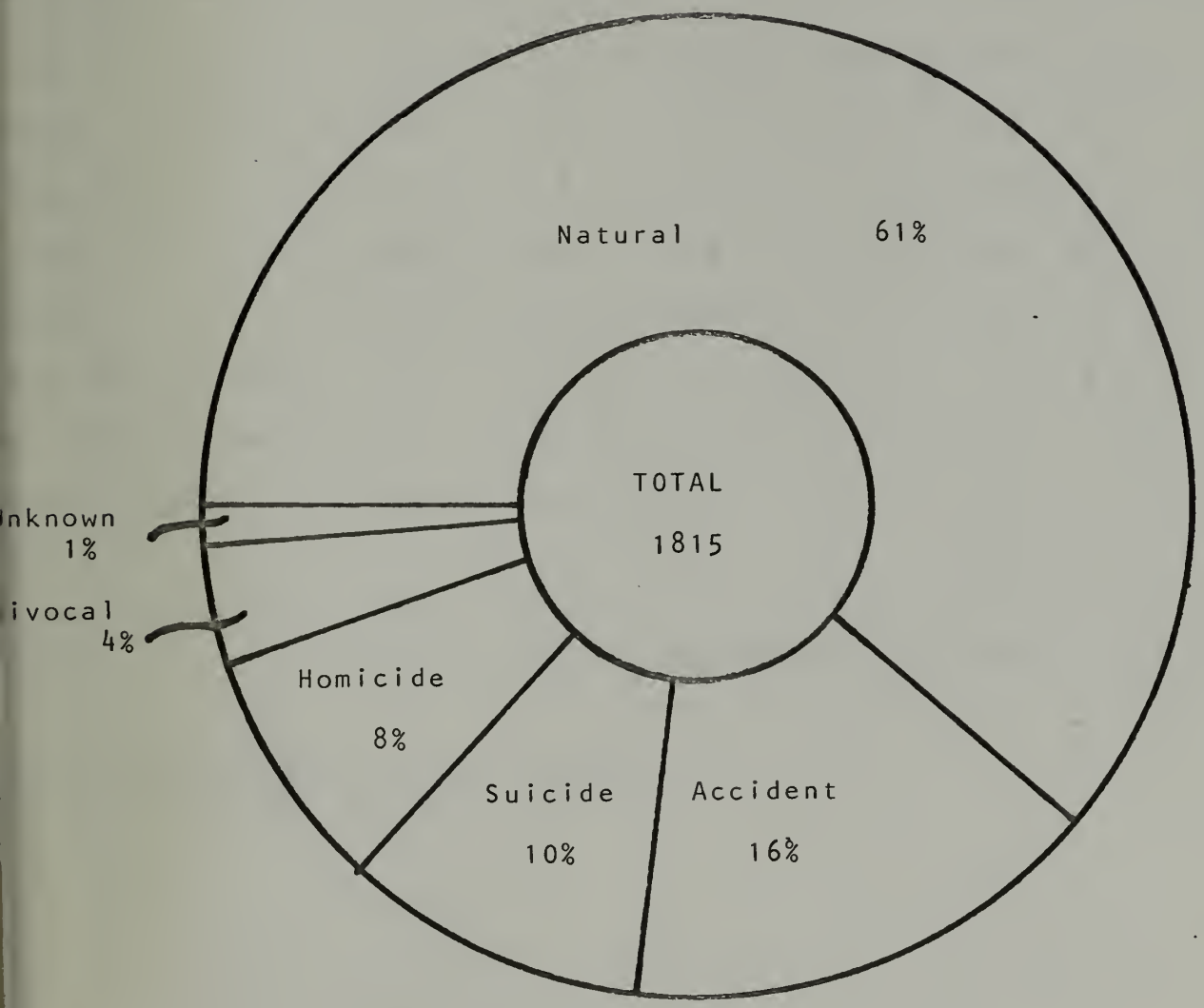
Burials Authorized by Coroner

1. Indigents and Fetuses buried by City	120
2. Veterans buried by Funeral Home (Rotation)	21
3. Cases buried by Funeral Homes with Public Administrator Controlled Funds	36
Inquests Held or Depositions Taken	42

Identification

1. Persons brought to Coroner's Office with insufficent identification	214
2. Persons subsequently identified by fingerprints, dental X-rays or other means	209
3. Persons buried as unidentified	5
4. Fingerprints taken and forwarded to FBI, CII, or SFPD	1,767

MEDICAL EXAMINER CASES FOR 1980-81



MEDICAL EXAMINER CASES

1980-81

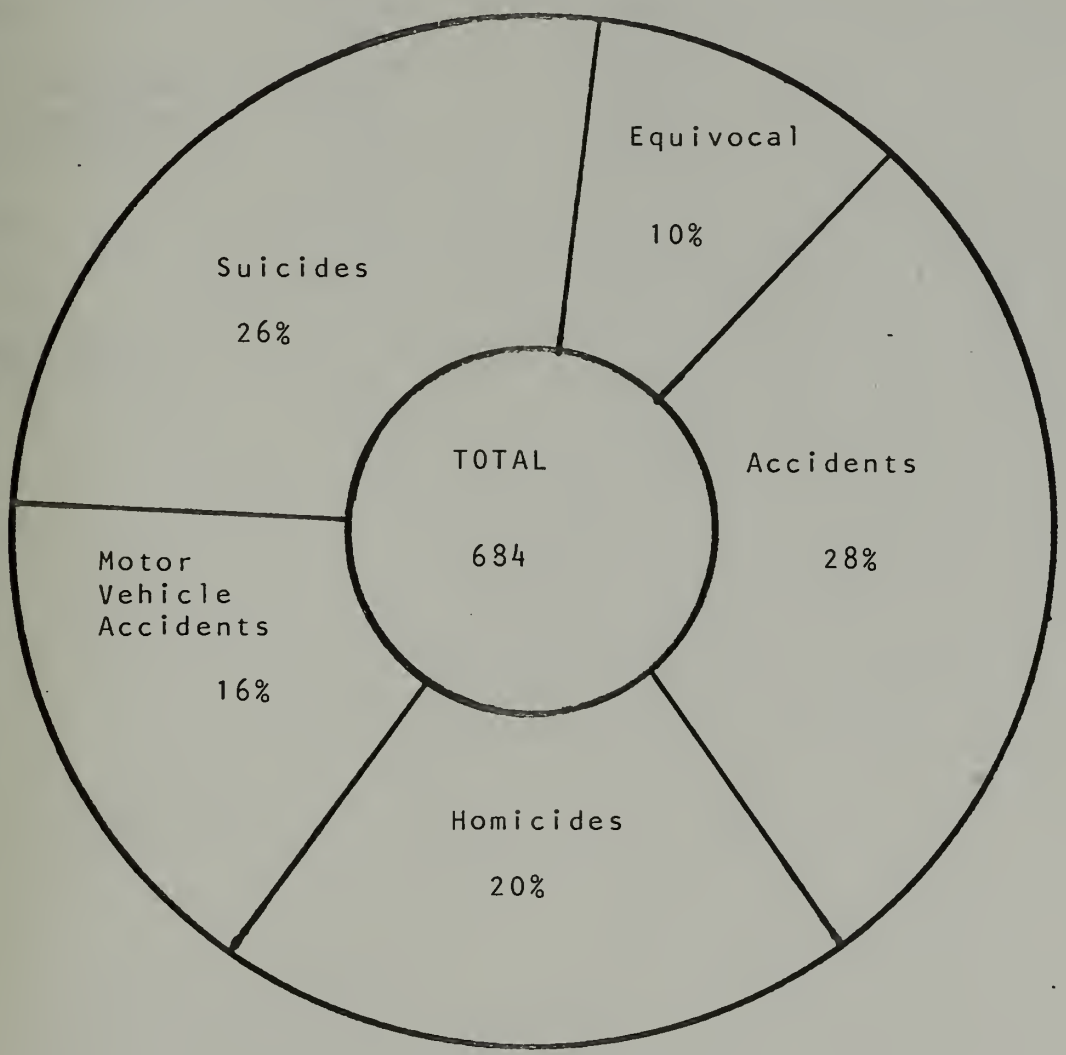
Monthly Comparison

NNER OF DEATH	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	TOTAL
tural	78	71	91	85	90	117	108	91	98	94	83	90	1099
known	4	1	0	1	1	3	0	2	2	1	1	3	19
ivocal	6	9	8	7	7	7	2	3	10	5	2	6	72
cide	18	14	18	12	16	16	15	13	18	15	13	11	179
icide	9	14	18	9	14	10	10	9	13	9	14	7	136
ustrial Accident	0	1	2	1	0	1	0	1	0	0	0	1	7
or Vehicle Accident	11	6	10	13	9	14	7	6	6	7	8	9	106
ident - Other	16	19	14	8	21	26	16	12	10	15	13	14	184
S*	1	0	0	1	2	1	1	1	3	3	0	0	13
ALS	143	135	161	139	160	195	159	138	160	150	134	141	1815

IDS = Sudden Infant Death Syndrome

VIOLENT DEATHS

Violent deaths are those caused by any non-natural means, including drugs. In San Francisco, 684 violent deaths occurred during the fiscal year 1980-81, accounting for 38% of the Medical Examiner death investigations.



VIOLENT DEATHS

There were 1,814 cases brought to the Coroner's Office and autopsied. Of these cases, 684 were determined to be due to violence, or that other trauma was involved.

Mode	Total No.	% of Total Coroner's Cases	% of Total County Deaths (8,300)
ACCIDENT	297	16.3	3.5
Motor vehicle	106	5.8	
Non-vehicular	184	10.1	
Industrial	7	0.3	
SUICIDE	179	9.8	2.1
HOMICIDE	136	7.4	1.6
EQUIVOCAL OR UNDETERMINED	72	3.9	0.8

VIOLENT DEATHS

Racial Distribution

RACE	Acc.	Traffic	Suicide	Homicide	Mode Equiv.	TOTAL
Caucasian	148	75	142	72	58	495
Black	27	13	13	46	6	105
Asian & Other	16	18	24	18	8	84
TOTALS	191	106	179	136	72	684

Distribution by Sex

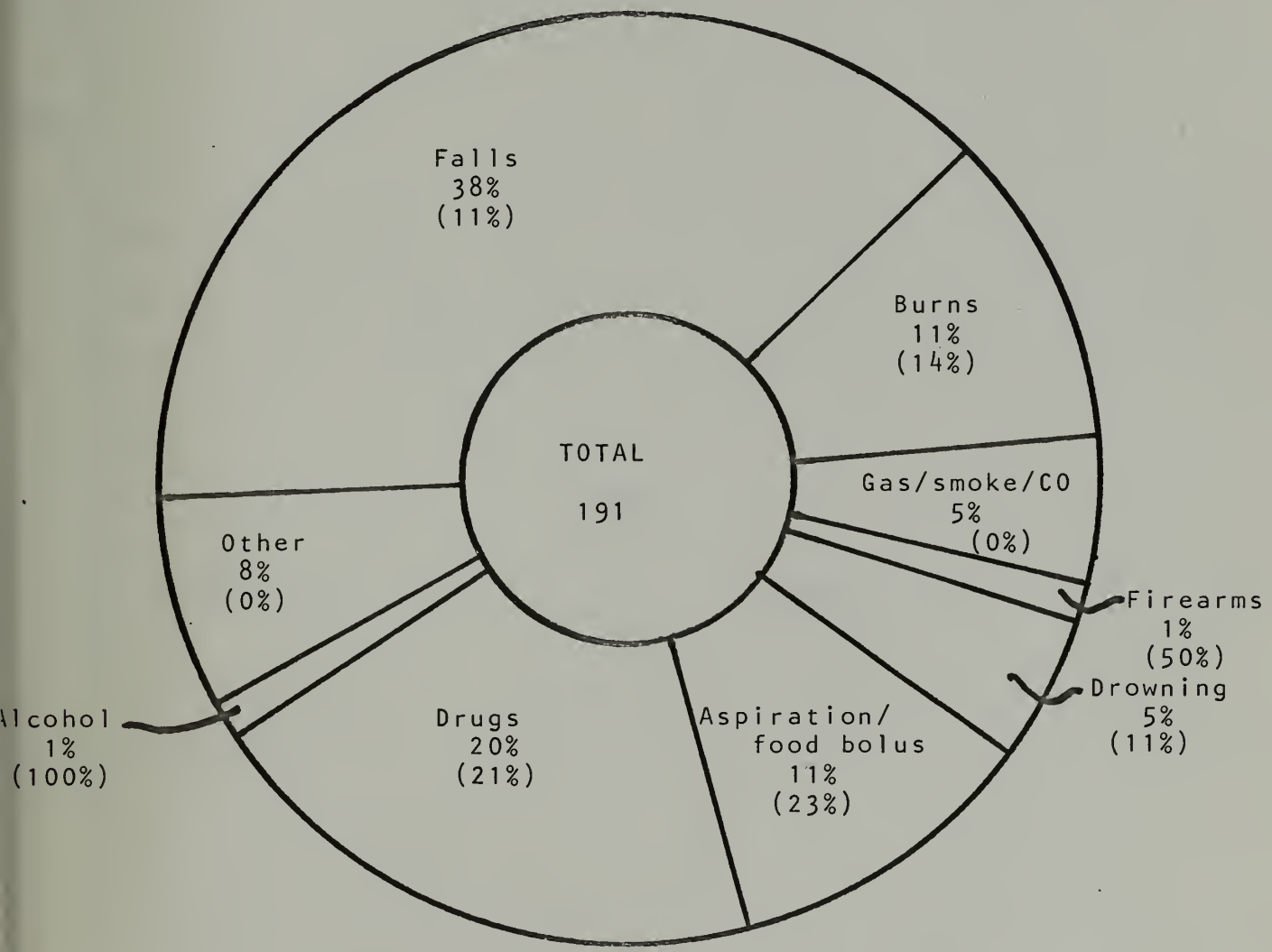
Male	122	70	129	117	43	481
Female	69	36	50	19	29	203
TOTALS	191	106	179	136	72	684

MODE OF DEATH - YEARLY COMPARISON

	1970-71	71-72	72-73	73-74	74-75	75-76	76-77	77-78	78-79	79-80	80-81
ACCIDENTS											
Motor vehicle	105	113	122	82	89	105	75	81	94	94	106
Non-vehicular	370	352	319	256	349	363	226	271	246	199	191
SUICIDES	263	206	227	220	224	195	233	194	233	208	179
HOMICIDES	107	110	94	137	126	151	149	145	103	114	136

ACCIDENTS

This category includes all unintentional fatalities except for traffic deaths. There were 191 accidental deaths which accounted for 11% of the Medical Examiner death investigations for the fiscal year 1980-81.



The percent in brackets indicates the percentage of victims in the category with a positive blood ethyl alcohol concentration.

INDUSTRIAL ACCIDENTS

1980-1981

otal Number of Industrial Accidents 7

EANS

Traumatic injuries 2

Falls 3

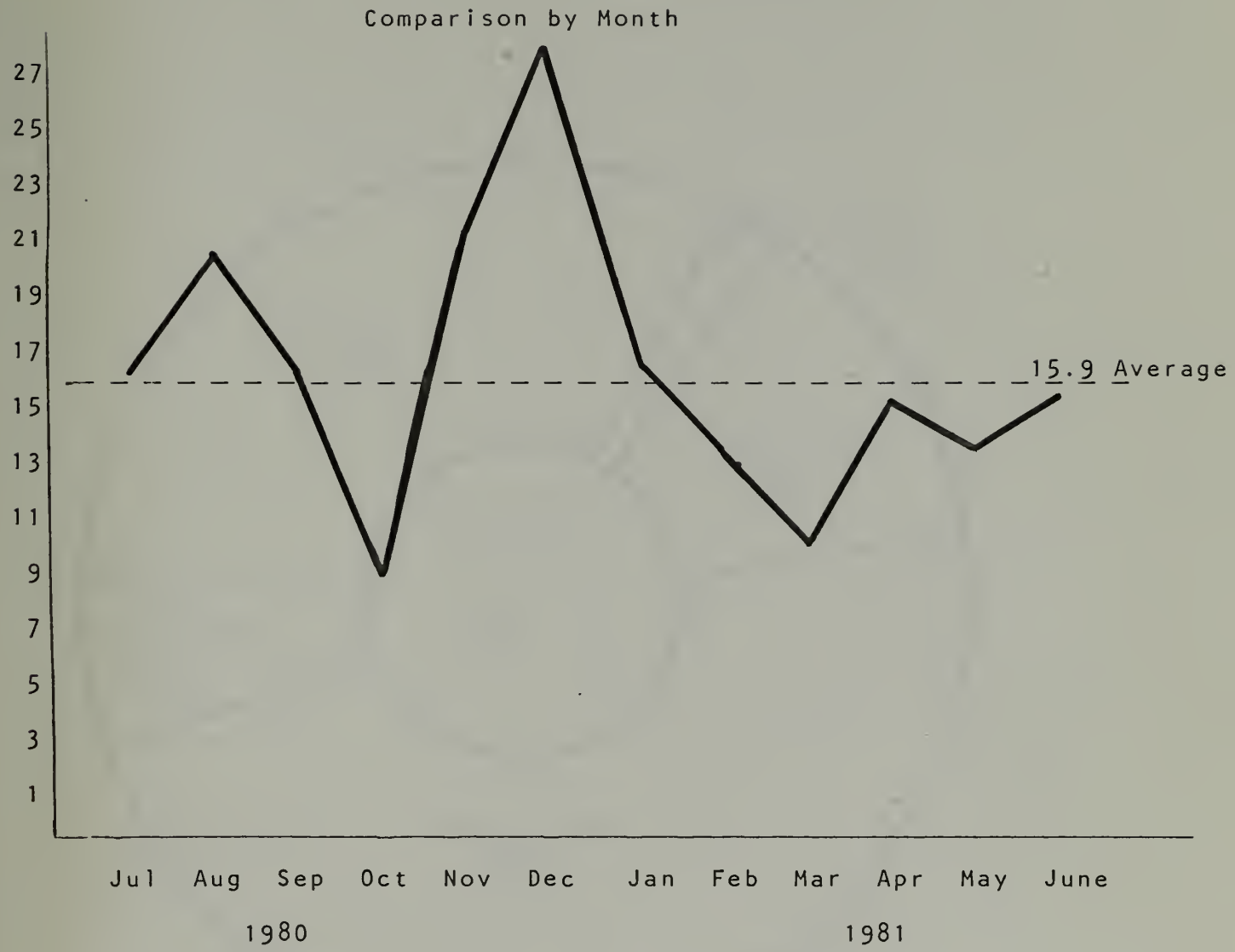
Burns 2

SEX

Male .....6 Female 1

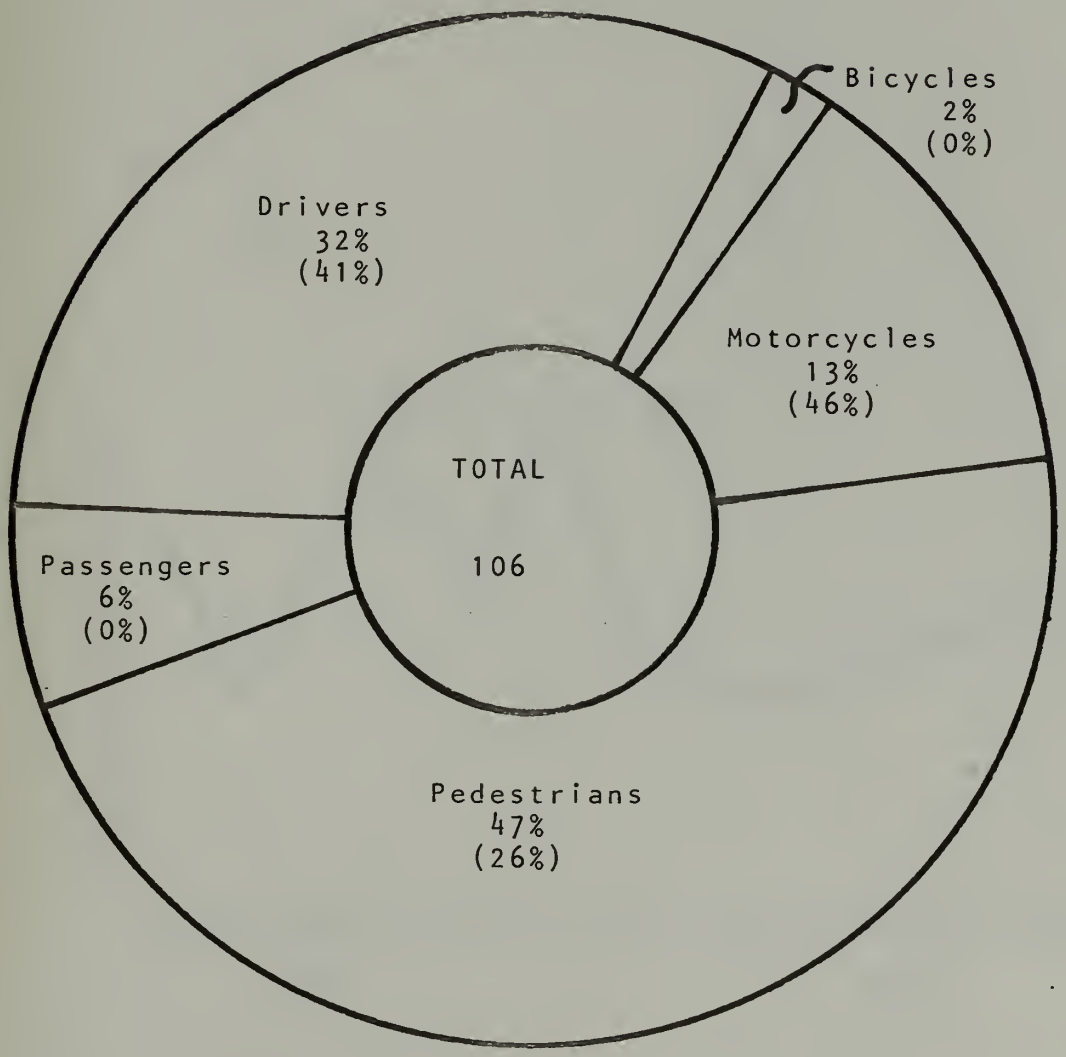
ACCIDENTS

(Including Industrial)



TRAFFIC

n San Francisco, there were 106 traffic-related fatalities, accounting or 6% of the Medical Examiner death investigations for the fiscal year 980-81.



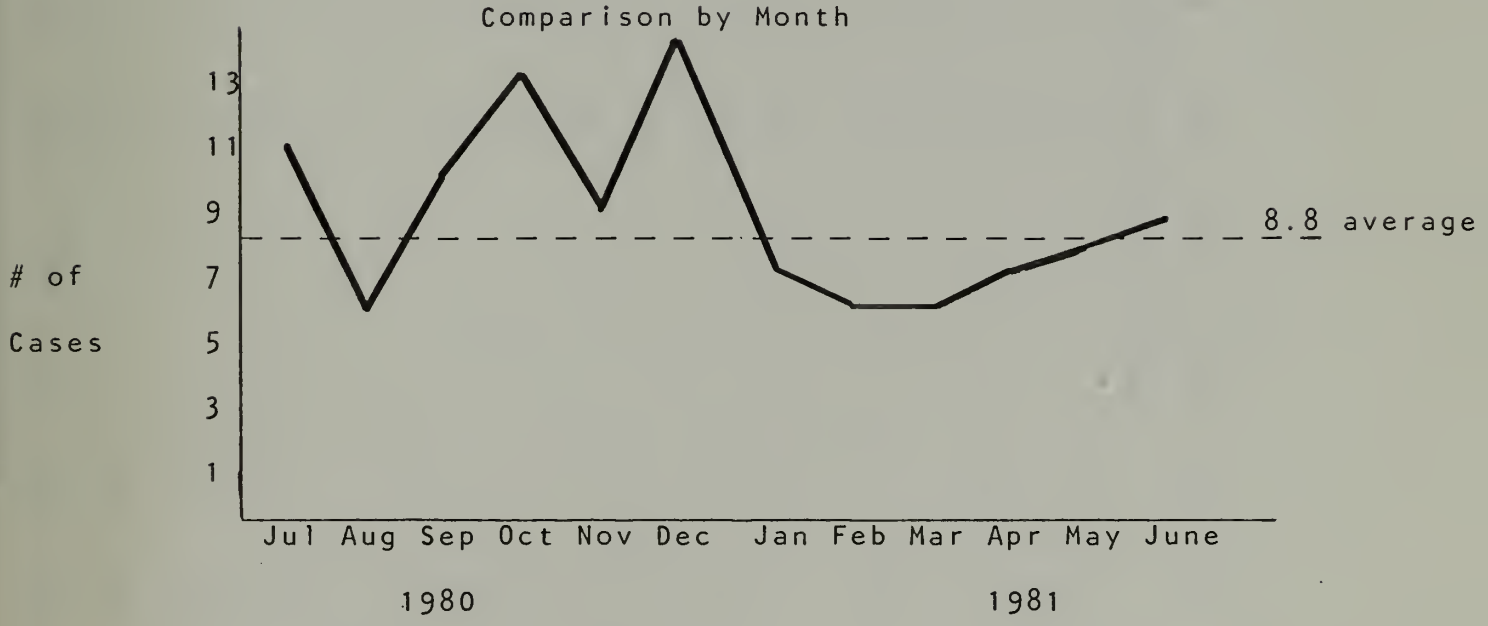
he figure in brackets indicates the percentage with positive blood thyl alcohol.

TRAFFIC (VEHICULAR) DEATHS

Comparison by Age

Age Group	Number
0 - 20	11
21 - 30	24
31 - 40	13
41 - 50	14
51 - 60	6
61 - 70	19
71 - 100	19

Comparison by Month



ACCIDENTAL DEATHS INCLUDING INDUSTRIAL

	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
TOTAL/MONTH	16	20	16	9	21	27	16	13	10	15	13	15	191
Male	9	15	10	6	14	15	9	8	7	9	8	10	120
Female	7	5	6	3	7	12	7	5	3	6	5	5	71
MANNER OF DEATH													
Alcohol	1	0	0	0	0	0	0	0	0	0	0	0	2
Drugs	4	2	2	0	4	3	4	2	4	5	5	4	39
Food Bolus	0	1	1	0	0	3	1	0	1	0	0	1	8
Aspiration	1	1	0	2	1	1	1	0	0	3	1	1	12
Drowning	2	2	0	1	1	0	0	1	0	0	0	1	8
Firearms	0	0	0	0	1	0	0	1	0	0	0	0	2
Gas/Smoke/ CO Inhalation	2	0	0	1	1	3	0	0	0	0	3	0	10
Burns	0	1	2	1	1	4	0	3	2	3	1	2	20
Fall	5	11	10	4	11	10	7	4	3	2	2	4	73
Other	1	2	1	0	1	3	3	2	0	2	1	1	17

MOTOR VEHICLE ACCIDENT DEATHS

	11	6	10	13	9	14	7	6	6	7	8	9	106

SUICIDE

The determination of suicide as a manner of death represents the summation of scene investigation, including a review of psychological state, autopsy, pathology, toxicology and, frequently, more investigation. To the best of our knowledge, this is the only Coroner's Office performing toxicology on multiple organs and/or body fluids routinely in order to evaluate the metabolic status of a drug or drugs.

Realizing the immense emotional effect on a family, the diagnosis of suicide is never made lightly, and always represents a decision made on the basis of data sufficient to defend that decision in a court of law, if necessary. Should these data be inconclusive, the victim automatically gets the benefit of the doubt.

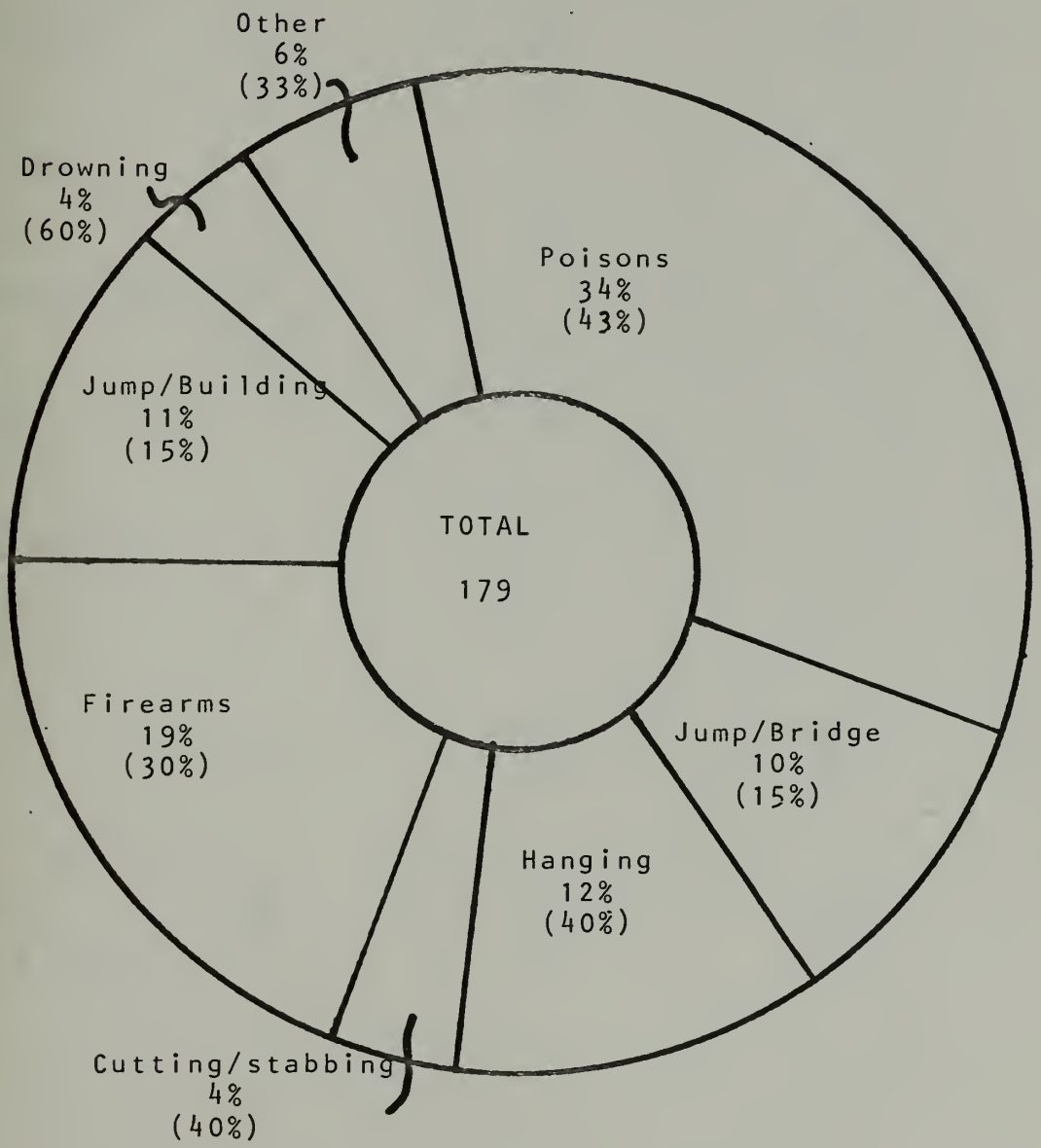
Suicide takes a tremendous toll of our young people. The relative number jumping from the Golden Gate Bridge would not seem to warrant the publicity assigned them as compared to the evident need for help for individuals using other methods.

To help understand the problem, and, hopefully, to aid in reduction of suicides, this office has supported suicidology research and prevention programs for many years. It is hoped that this work will help to reduce this needless loss.

The majority of these deaths are situational reactions, and, given momentary trained support, are potentially preventable.

SUICIDES

Suicides are those deaths caused by self-inflicted injuries. In San Francisco, 179 suicides occurred, accounting for 10% of the Medical Examiner death investigations for the fiscal year 1980-81.



The percent in brackets indicates the percentage of victims in the category with a positive blood ethyl alcohol concentration.

SUICIDES

TOTAL NUMBER 1980-81..... 179

METHOD	1978-79	1979-80	1980-81
Poisoning	83	52	55
Jump/G.G. Bridge	19	21	21
Jump/Building	41	30	13
Auto/CO	0	3	7
Plastic Bag	2	1	0
Hanging	21	35	23
Cutting/stabbing	8	5	8
Firearms	50	47	36
Drowning	4	10	6
Burning	3	0	3
Jump/Bay Bridge	0	1	0
Other	2	2	7
SEX			
Male	158	162	128
Female	75	46	51
RACE			
Caucasian	206	174	142
Black	12	17	12
Asian and Other	15	17	25

SUICIDES

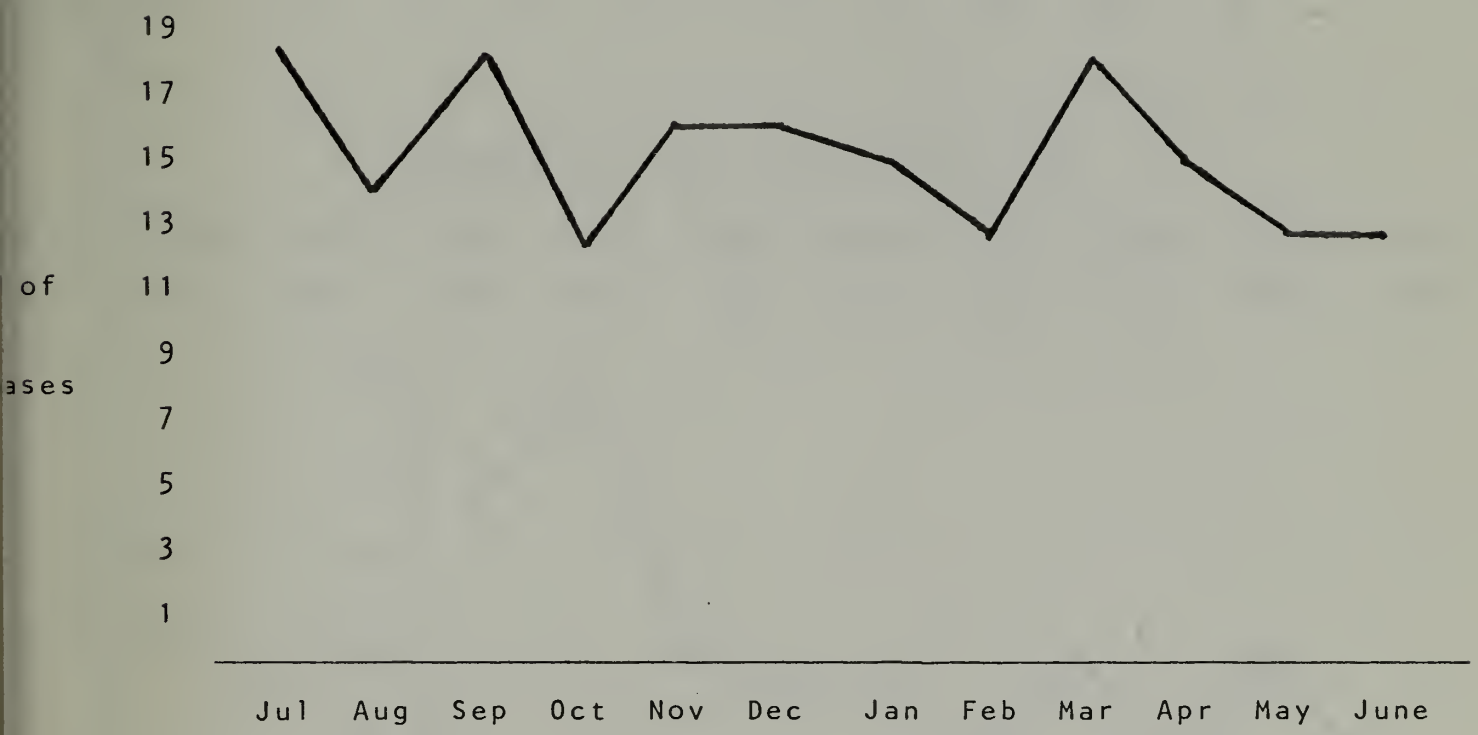
Comparison by Age

Number per Year

Age Range	1977-78	1978-79	1979-80	1980-81
0 - 20	9	6	9	11
21 - 30	57	65	60	41
31 - 40	33	36	41	41
41 - 50	25	34	39	32
51 - 60	27	36	19	22
61 - 70	17	25	17	13
71 - 80	17	18	21	11
81 - 90	9	11	11	7
91 - 100	0	2	0	1

SUICIDES

Comparison by Month



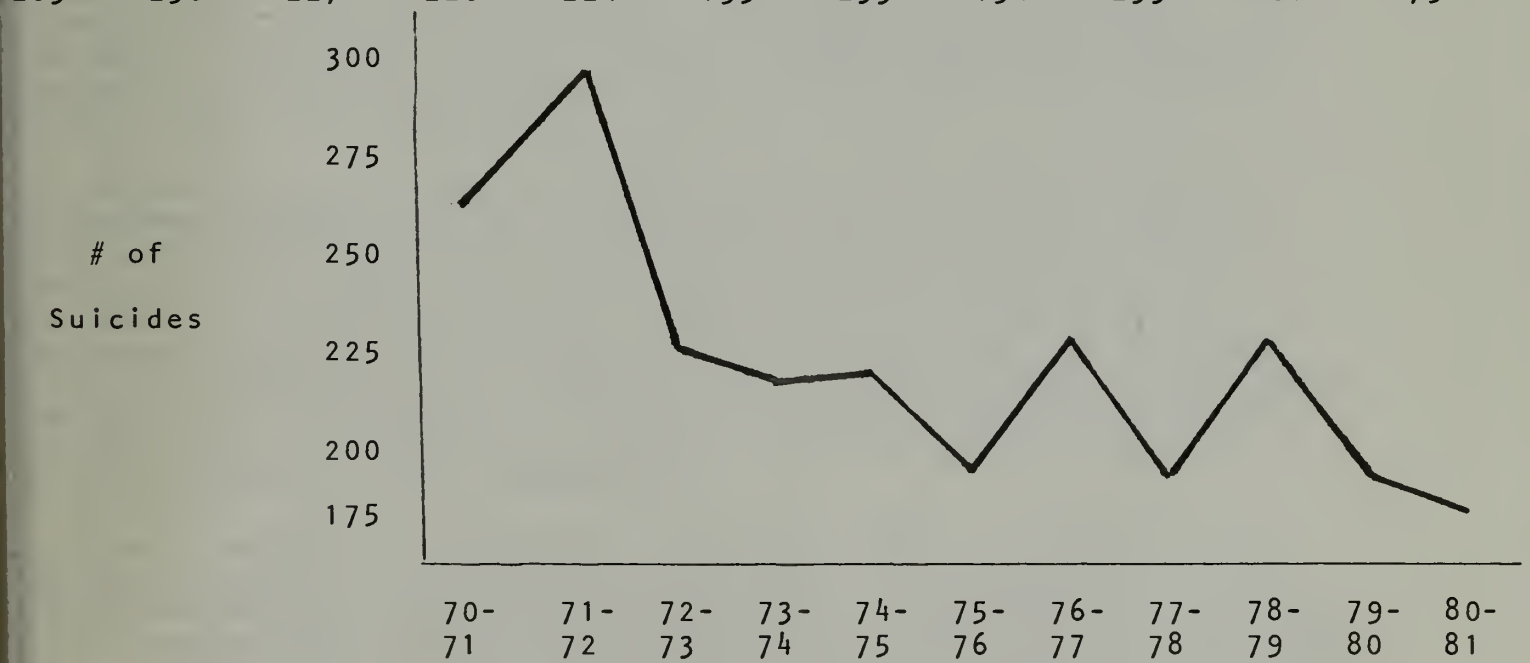
SUICIDES

COMPARISON BY YEARS

ethod	70-71	71-72	72-73	73-74	74-75	75-76	76-77	77-78	78-79	79-80	80-81
oisoning	75	74	69	51	76	56	79	65	83	52	55
and gun	32	38	33	43	45	44	49	35	40	40	31
olden Gate Bridge	20	28	16	21	14	19	28	18	19	21	21

COMPARISON - TOTAL SUICIDES BY YEAR

0-71	71-72	72-73	73-74	74-75	75-76	76-77	77-78	78-79	79-80	80-81
263	296	227	220	224	195	233	194	233	208	179



HOMICIDE

Homicide is the killing of one human by another. Murder is the unlawful killing of a human being with malice. The following data do not differentiate homicide as to whether it is justifiable, accidental or murder. Such distinctions are the proper function of the judicial system and are not the responsibility or function of this office.

Any judicial system dealing with crimes involving death requires a well-trained staff and well-equipped Medical Examiner-Coroner's Office that can and will interpret the forensic findings in an unbiased, fair manner. This investigation must be intense, accurate and rapid enough so that charges against one or more individuals may be pursued or dismissed without unfairly affecting their constitutional rights. That is the purpose of this office.

The proper evaluation and investigation of a homicide begins, naturally, at the scene. In the majority of cases, a member of this office (either the Coroner's Investigator, Administrative Coroner or Medical Examiner-Coroner), determines whether a death is a potential homicide. It has been well-documented that, if such a determination is made by an individual inexperienced or untrained in death investigation, his opinion will be wrong in 50% of the cases. Such a person is very apt to miss the subtle homicide and is more inclined to miscall a natural or accidental death a homicide, resulting in false arrest, false accusations, needless expenditure of public funds, waste of investigative time, and delay in the investigation of other deaths.

The Coroner's Investigator responds to the scene of death and determines whether the Police Homicide Detail will be called. When homicide is obvious, the Coroner's Investigator responds as part of a team (other members include homicide investigators, photographers, criminologists). This office is responsible for the body, identification, inquiry into circumstances, manner and means of death (Gov. Code 27491.2). Besides the scene investigation, the Coroner's Investigator is responsible for recovered property, location and notification of next of kin, and preparation of a written summary of his investigation.

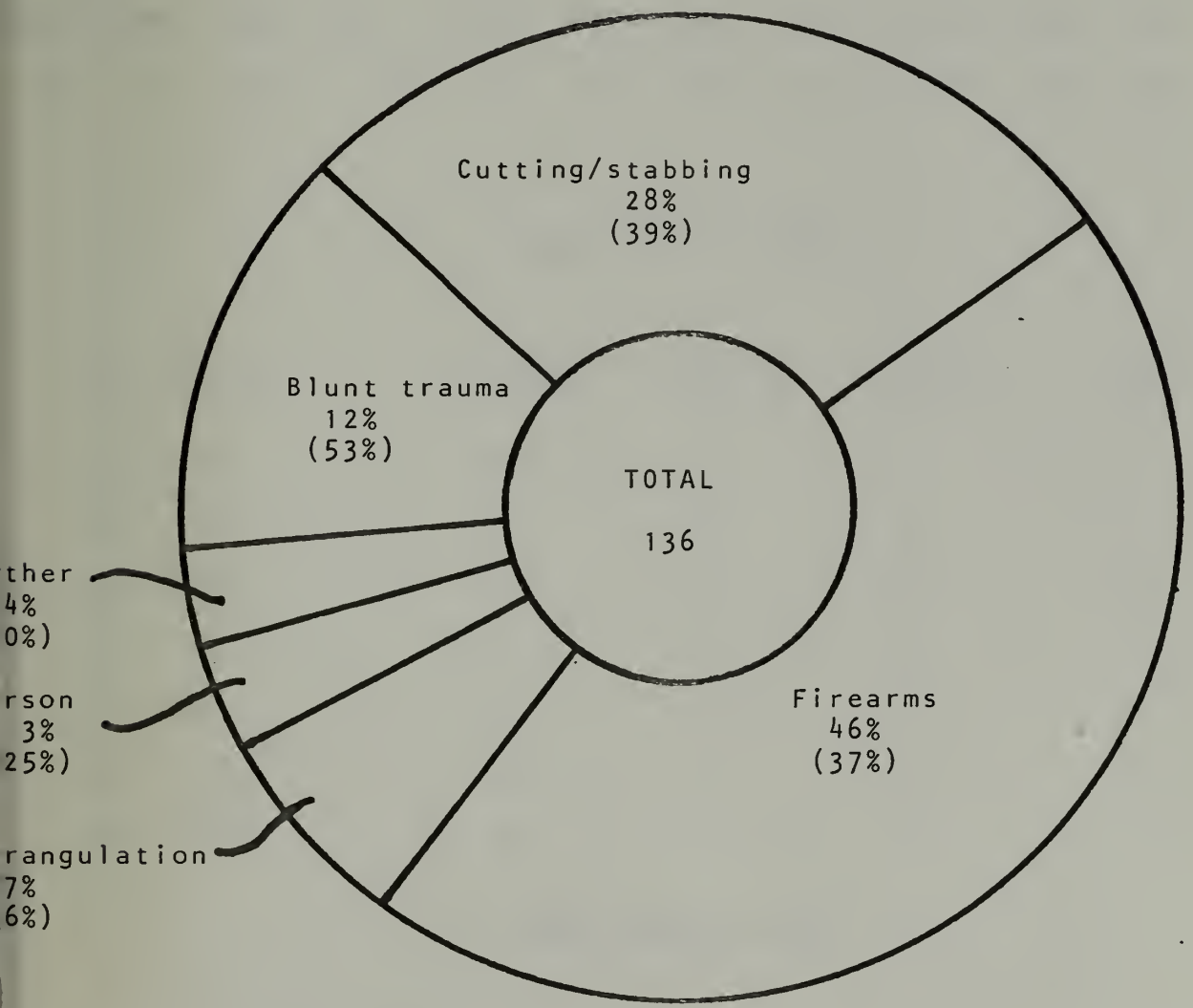
In about one-third to one-half of the homicides, a forensic pathologist responds to the scene, aiding in the investigation. The subsequent autopsy, including photography, may also use fluoroscopy, X-ray, angiography and other techniques to establish and define the number, nature and severity of wounds, obtain evidence (i.e. bullets) and to prepare an official report. This report, including chemistry, serology and toxicology results is used as part of the prosecution or defense of the case in the formal judicial hearing.

The very first requirement of our judicial system pertaining to criminal trial, requires identification of an individual and presentation of evidence, usually by virtue of expert testimony, relative to the cause of death or trauma associated with the death. The Medical Examiner-Coroner's Office identifies the body, frequently relying on local police, CII or FBI fingerprints. Expert forensic testimony is given by the Forensic Pathologist from this office. In addition, the Forensic Toxicologist is frequently called upon to testify on the significance and effect of various drug levels, a matter of great importance when dealing with the concept of diminished capacity.

Of minor, but increasing importance, is the fact that, because of our excellent and advanced medical facilities, we are seeing more homicide and trauma cases transferred into the county for medical therapy. Should these individuals die, the autopsy and court testimony are done by this office.

HOMICIDES

Homicides are those deaths caused by another person, generally resulting in murder or manslaughter charges. In San Francisco, 136 homicides occurred in 1980-81, accounting for 7% of the total Medical Examiner death investigations.



HOMICIDES

Total Number of Homicides 136

Males . . . . 110 Females 26

COMPARISON BY MONTH

JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
9	14	18	9	14	10	10	9	13	9	14	7	136

COMPARISON BY AGE

Age range	1977-78	1978-79	1979-80	1980-81
0 - 20	20	10	9	14
21 - 30	59	38	43	41
31 - 40	28	19	28	29
41 - 50	12	16	11	14
51 - 60	10	9	9	14
61 - 70	10	5	9	9
71 - over	6	6	5	4

COMPARISON BY RACE

Caucasian . . . 72

Black 46

Asian and Other 18

HOMICIDE

COMPARISON BY METHOD

Method	Number	Alcohol*	Drugs**
Blunt trauma	17	53%	24%
Cutting/stabbing	38	39%	13%
Firearms	63	37%	19%
Strangulation	9	56%	11%
Arson	4	25%	0%
Other	5	20%	40%

* Refers to percentage of victims (of those tested) with positive blood ethyl alcohol concentration

**Refers to percentage of victims (of those tested) with positive drug levels

PATHOLOGY

In the Pathology department, the tissue and body fluid samples taken at autopsy are prepared for microscopic study, histo-chemically stained, or analyzed for chemical constituents. Cardiac pacemakers or other mechanical life-support devices are examined for any defect. Smears or "wet-mounts" are examined for spermatozoa, bacteria or tuberculosis. Bacteriologic cultures may be taken, but if pathogens are grown, they are usually sent to the Department of Public Health (state or local) for further identification. If indicated, "soft" X-rays or histo-chemical tests are done to establish entrance or exit gunshot wounds. Here, also, research techniques such as methods of obtaining fingerprints from the skin of a victim, are developed.

PATHOLOGY*

YEAR	TOTAL CORONER'S CASES	CASES REFERRED TO PATHOLOGIST	NO. OF ORGANS SUBMITTED	NO. OF SECTIONS TAKEN	HISTO-PATHOLOGIC SLIDES MADE	** SPECIAL STAINS	*** BLOOD GROUP-INGS	**** OTHER DETERMINATIONS
1980								
JULY	143	96	718	2261	540	45	14	39
AUG	135	98	444	1739	435	31	21	55
SEPT	161	124	524	2028	527	37	18	70
OCT	138	84	526	1941	501	14	17	25
NOV	160	126	501	1964	440	19	15	68
DEC	195	161	703	2515	693	45	23	107
1981								
JAN	159	106	735	1774	384	12	20	58
FEB	138	111	743	1914	420	25	15	68
MAR	160	109	712	1818	401	39	13	91
APR	150	108	802	2037	456	25	9	126
MAY	134	95	854	1805	406	50	21	154
JUNE	141	88	614	1804	411	36	9	200
TOTALS	1814	1306	7876	21636	5614	374	195	1061

* These figures do not reflect photography, forensic radiology or material prepared for teaching forensic pathology

** Includes smears examined for bacteria and spermatozoa

*** ABO and Anti Rh

**** Blood, urine, water, evidence - for hematology, biochemistry, urinalysis, bacteriology, serology, "Sickledex", etc.

PATHOLOGISTS

Time spent by 4 pathologists during the 1980-81 fiscal year in:

Court appearances		
Depositions		
Attorney consultations	=	1265 hours
Lectures		

TOXICOLOGY

Toxicology is the science that deals with the detection and identification of drugs and poisons. In our work, any possible agent may be of importance in a death. The most common poisons in our community are prescription items. Other common agents are illegal drugs (street drugs), industrial compounds, certain gases and alcohol.

It is necessary not only to accurately detect and identify the agent or agents involved in a case, but to precisely quantitate them so that their exact relationship to the death, if any, can be evaluated. This determination must be as precise and specific as scientifically possible, and it must be able to stand up to review by any other qualified laboratory in the nation.

As a routine part of our work, we determine the levels of drugs in two or more body "compartments" such as blood and stomach, or combinations of three compartments, in order to answer the question of acute or chronic drug usage. This is of utmost importance in determining the time of ingestion, and therefore the intent of the ingestion - whether accidental or suicidal. Since the types and natures of the unidentified compounds can be so varied, thus must the capabilities of this department also be varied.

Extensive research is performed in this department, some of which deals with means of identifying unknown compounds in post-mortem samples. A current project is concerned with determining the types of drugs and their levels in both the victim and suspect in certain serious crimes. This information is then available for the courts to aid in the just determination of the innocence or guilt of the person charged with the crime.

TOXICOLOGY

July 1980 - June 1981

Incidence of various drugs or poisons found singly or in combination:

The drugs listed are not necessarily the cause of death or even a contributing cause. These figures reflect toxic agents present in the body to any degree. Any one case may have more than one drug or poisons present. Also, the drugs/poisons listed may fit into more than one category and have been placed in a specific group on the basis of their most common usage.

ABUSE DRUGS	
Alkaloids of morphine	35
Amphetamine	9
Cocaine	13
Codeine	25
LSD	2
Methamphetamine	12
Methaqualone (Quaalude®)	3
PCP (Phencyclidine)	1
ANALGESICS	
Non-narcotic	
Acetaminophen	12
Salicylate	19
Narcotic	
Meperidine (Demerol®)	1
Methadone	8
Propoxyphene (Darvon®)	10
ANTI-ARRHYTHMICS, CARDIAC	
Lidocaine	16
Propranolol (Inderal®)	2
ANTI-CONVULSANTS	
Carbamazepine (Tegretol®)	1
Phenytoin (Dilantin®)	8
ANTI-DEPRESSANTS	
Tricyclic type	
Desipramine (Norpramine®)	5
Doxepin (Sinequan®)	4
Imipramine (Tofranil®)	5
Nortriptyline (Aventyl®)	2
Non-Tricyclic type	
Amitriptyline (Elavil®)	15
Amoxapine (Asendin®)	1
ANTI-HISTAMINES	
Chlorpheniramine	1
Diphenhydramine	4
HYPOGLYCEMIC AGENTS	
Chlorpropamide (Diabenese®)	2
Insulin	1
MISCELLANEOUS	
Colchicine (Probenecid®) (Used to treat gout)	1
Digoxin (Used to treat congestive heart failure)	2
Hydrochlorothiazide (Diuretic)	1
Pseudoephedrine (Decongestant)	2
Caffeine	2
Nitrite	1

SEDATIVE-HYPNOTIC DRUGS	
Barbiturates	
Amobarbital	8
Pentobarbital	9
Phenobarbital	11
Secobarbital	13
Non-barbiturates	
Chloral hydrate	1
Ethchlorvynol (Placidyl®)	1
Flurazepam (Dalmane®)	9
TRANQUILIZERS, MINOR (Used to treat anxiety)	
Benzodiazepines	
Chlordiazepoxide (Librium®)	2
Diazepam (Valium®)	17
Non-Benzodiazepine	
Meprobamate	4
TRANQUILIZERS, MAJOR (Used to treat psychosis)	
Phenothiazine derivatives	
Chlorpromazine (Thorazine®)	3
Thioridazine (Mellaril®)	5
Trifluoperazine (Stelazine®)	1
Non-Phenothiazines	
Haloperidol (Haldol®)	1
Thiothixene (Navane®)	1
VOLATILE AGENTS AND GASES	
Acetone	9
Carbon Monoxide	29
Methyl alcohol	3

TOXICOLOGY

Year/ Month	# Cases Referred to Toxicology	# Specimens Received	# Tests Performed	Alcohol Tested	Alcohol Pos.	Barbiturates Tested	Barbiturates Pos.
1980							
JUL	146	731	513	146	33	146	7
AUG	129	621	479	128	29	128	3
SEP	169	828	664	167	47	167	4
OCT	134	681	531	133	36	133	2
NOV	154	766	567	150	37	151	3
DEC	206	1026	754	205	43	205	3
1981							
JAN	148	686	465	147	31	147	0
FEB	144	703	684	143	37	143	1
MAR	164	814	658	163	33	163	3
APR	148	735	630	147	34	147	1
MAY	132	664	497	131	38	131	1
JUNE	140	714	542	138	37	138	3
TOTALS	1814	8969	6984	1798	435	1799	28

HEROIN DEATHS

Morphine-type alkaloid (Heroin) deaths 9

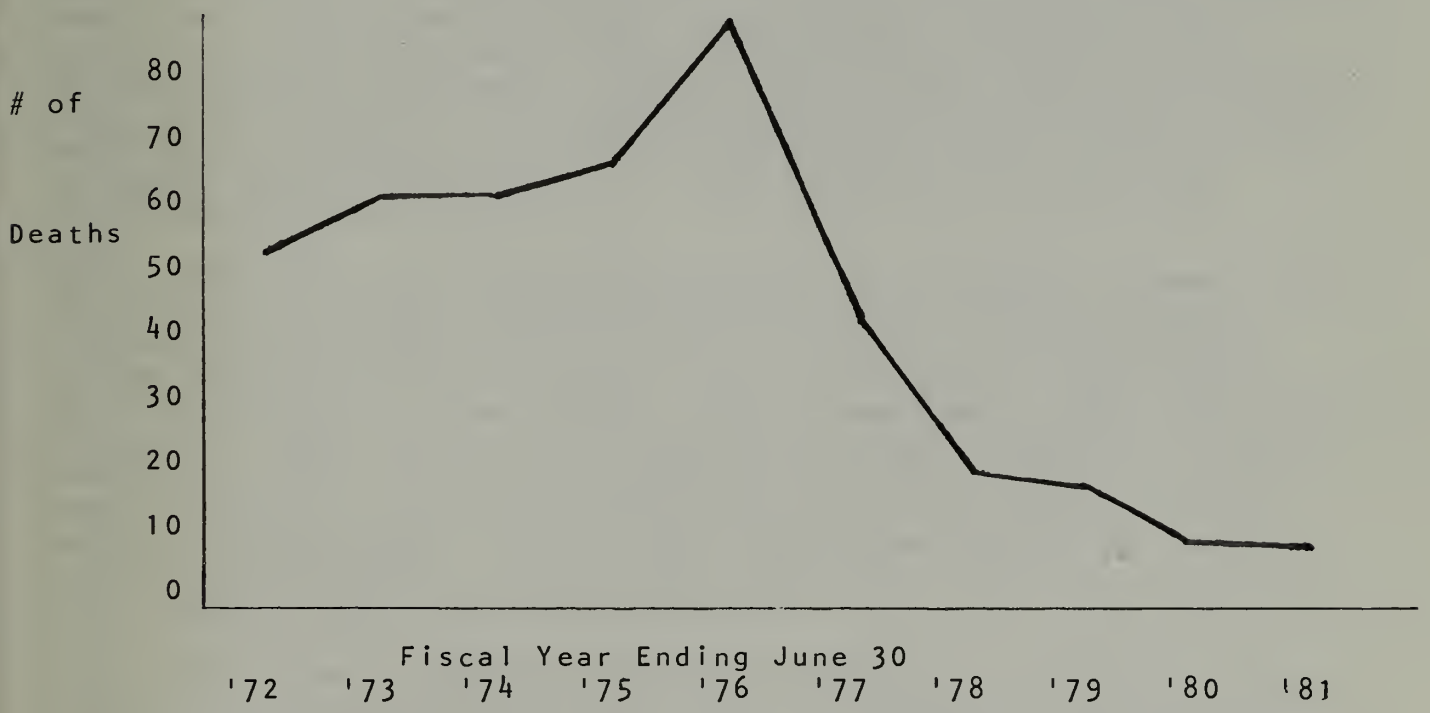
Sex Distribution - Male 8 (89%)
Female 1 (11%)

Racial Distribution - White 7 (78%)
Black 2 (12%)

Age Distribution

16-20	21-35	26-30	31-35	36-40	41-over
0	2	3	3	0	1

TEN YEAR COMPARISON OF HEROIN DEATHS



The data presented on the graph indicate a continuing decrease in heroin-related deaths for the fifth consecutive year.

RESEARCH AND SPECIAL PROJECTS

The San Francisco Medical Examiner-Coroner's Office was awarded a federal contract in September 1978, from the National Institutes of Child Health and Human Development, to set up and maintain a coordinating pathology laboratory as part of a nation-wide collaborative study on Sudden Infant Death Syndrome (SIDS). The aim of this study is to determine specific diagnostic criteria and to possibly establish risk factors for SIDS. This contract is currently funded at a level of $338,444. and will continue into 1982, termination date not yet determined. Tissue specimens, histories and autopsy reports from 978 cases of infant death have been submitted to this office from Coroner's offices throughout the United States. From the tissues submitted on each case, a set of microscopic slides was prepared in a standardized manner. A total of 23,729 microscope slides have been prepared. The slide sets are being examined by three pathologists, experienced in SIDS diagnosis, who each submit an independent opinion as to the cause of death on each case. The three diagnoses are compared, along with the history and autopsy report, and a final cause of death is being established for each case, Data are being collected and coded for computer input at the Data Coordinating Center at the University of Washington in Seattle. This contract has provided employment for 11 people since its inception. Three people are now working part-time on this project.

This office was also the recipient of a federal grant, funded with LEAA monies, received through the Office of Criminal Justice Planning in Sacramento and the Mayor's Criminal Justice Council in San Francisco. This project, entitled "Forensic SErology and Toxicology Analysis" was funded through September, 1980. Starting October 1, 1980, funding for this project has been provided from the General Fund with the understanding that all efforts will be made to generate revenue to compensate for these funds through testing of specimens, with charges being made, which are received from outside counties. Employment for 3 people, 2 part-time, 1 full-time, is provided on this project.

A special project (11550) is being performed by this office, in particular the Toxicology department, in collaboration with the San Francisco Police Department. Individuals who are suspected of being under the influence of opiates are being detained by the police. With informed consent, urine specimens are obtained from these individuals. The urine samples are then screened in this office for the presence of opiates. Test results may be admitted into court proceedings concerning the presence or absence of opiates in the urine at the time of specimen collection.

GLOSSARY

ALKALOID OF MORPHINE GROUP	Typically referred to as morphine type alkaloid, this is the chemical substance found in body fluids after the injection of heroin or other drugs derived from opium
TOXICOLOGY NOT VALID OR ELIMINATED	This term indicates that the deceased lived long enough after the injury to have eliminated some or all toxic agents from the body
FORENSIC PATHOLOGY	The specialty field of medicine involving the application of medical and pathology principles in determining the cause and manner of sudden, unexpected, and medically unattended deaths. This includes the type and nature of injury, public health hazard, type or nature of homicide weapon, the relation of injury to death and interpreting other factors for the courts. These data are prepared and presented to the judicial system or for public health interests in keeping with the best available knowledge
MODE OF DEATH	Indicated the manner of death, such as natural, accident, suicide or homicide, and is to be distinguished from cause of death, which is purely a medical determination
MODE EQUIVOCAL	With the cause of death undetermined, investigative data does not clearly differentiate between two modes of death, although some evidence supports either one
MODE UNDETERMINED	With the cause of death determined, investigative data does not clearly support one of two possible modes, and either one is possible without prejudice
MODE UNKNOWN	Circumstances insufficient to indicate between two possible modes, as when only bones are found, or when no medical cause of death is determined
PATHOLOGY	That branch of medicine which deals with the essential nature of disease, especially in the structural or functional changes in tissues, organs or systems of the body causing disease. It involves the diagnosis of disease by microscopic or chemical analysis.
SEROLOGY	That branch of pathology which deals with the analysis of blood and body fluids. Blood types for identification, exclusion of a suspect or judicial purposes are examples of the use in this office.

GLOSSARY

TOXICOLOGY	The scientific study of poisons, their detection, actions and treatment. The relationship of drug levels to emotional or personality change, behavioral or reasoning ability are frequent decisions based on this data.
MEDICAL EXAMINER	A physician specifically trained in forensic pathology who is responsible for investigating and determining the cause and manner of sudden or unexpected death
AUTOPSY	A scientific dissection of the human body to determine the cause and nature of death in order to detect public health hazards, determine the method or type of death in homicides and improve the level of medical care in the community. In some cases, showing that no injury or wrongdoing was present is of great emotional and stabilizing value to the family.